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ABSTRACT

START-UP AND OPEN INNOVATION

**by
Gonxhe Tali**

Nowadays, in many industries the traditional research and development approach has become obsolete. For this reason, during the past two years companies started focusing on Startups and the Open Innovation. Firms should use internal and external relationships, ideas and paths in order to advance their organizational process and technology. Open Innovation combines all those ideas into a system and defines all the requirements for the new business model.

The purpose of this thesis is to illustrate how Startups successfully organize and manage open Innovation with large and small companies and to highlights the strengths, weaknesses, challenges and barriers faced by Startups in an Open Innovation context along with its benefits.

Moreover, it looks on the competitive effects of Startups in the market and their rapid grow which lead to a flexible business model.

START-UP AND OPEN INNOVATION

**by
Gonxhe Tali**

**A Dissertation
Submitted to the Faculty of
New Jersey Institute of Technology
in Partial Fulfillment of the Requirements for the Degree of
Master of Science in Engineering Management**

Department of Industrial and Mechanical Engineering

May 2018

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APPROVAL PAGE
START-UP AND OPEN INNOVATION

Gonxhe Tali

Dr. Layek Abdel-Malek, Thesis Advisor Professor of Mechanical and Industrial Engineering, NJIT	Date
---	------

Dr. Sanchoy K. Das, Committee Member Professor & Graduate Advisor of Mechanical & Industrial Engineering, NJIT	Date
---	------

Dr. Alberto Ivo Dormio, Thesis Advisor Associate Professor of Industrial Engineering, UNIPR	Date
--	------

BIOGRAPHICAL SKETCH

Author: Gonxhe Tali

Degree: Master of Science

Date: May 2018

Undergraduate Education:

- Bachelor of Science in Engineering Management,
University of Parma, Parma, Italy, 2016
- Master of Science in Engineering Management,
New Jersey Institute of Technology, Newark, NJ. USA, 2018

Major: Engineering Management

Dedicated to my beloved brother.

“Ca pika shiu ranë mbi qelq.

Për ty unë befas ndjeva mall”

Ismail Kadare, Mall 1976

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LIST OF ABBREVIATIONS

CI: Closed Innovation

IP: Intellectual Property

OI: Open Innovation

R&D: Research and Development

ROI: Return on Investment

NIH: Not Invented Here

VC: Venture Capital

MVP: Minimum Viable Product

CHAPTER 1

INTRODUCTION

The rapid technological progress due to the economic globalization has made Innovation one of the most important competitive weapon inside enterprises. In fact, Innovation is an essential tool for the development and growth of companies over time able to guarantee competitiveness for companies.

Innovation is mandatory if you want to maintain a good strategic position on the market; but, it can also be considered risky because of the high competition and the exorbitant economic effort needed to constant innovate.

In order to innovate in a more effectively manner, Enterprises decided to abandon the *Closed Innovation* (CI) system, which focused its attention only to the internal product development knowledge and research and development (R&D) departments, refusing to interact with the external environment. It is in this specific moment that *Open Innovation* (OI) made his appearance as a new management model for Innovation.

According to Henry Chesbrough, knowledge is widely distributed and widespread, and companies cannot rely only on their research centers, but must undertake collaborative relationships with other companies in order to obtain information for the products' development. Firms need to adopt an open business model which allows ideas to flow outside and within the company environment, include inbound and outbound activities and consider all the components that are useful for the improvement of products such as universities, suppliers, customers, spin-offs and Startups.

This thesis will focus particularly on the Startups context, underlining the benefits that occur by adopting an Open Innovation approach, for example obtaining necessary funds to carry on their business.

Startups are considered carries of Innovation but with a lot of limitations such as difficulty of entering the market, lack of financial resources and possible failure in the first years of life that can be solved thanks to the Open Innovation approach.

The second chapter gives some definition of Innovation and underlines the different typologies, the processes and the strategies that can be used.

The third chapter defines the term of Open Innovation and its processes, constraints, barriers and opportunities. It also considers the Closed Innovation underlining its peculiarities and the reasons why enterprises decided to abandon this method. At the end, OI and CI are compared.

The fourth chapter focuses on the Start-ups and their relationship with OI. Highly importance is given to the processes, collaborations, objectives, limits and benefits that occur by using the OI approach. The aim of this thesis is to understand how Startups can utilize OI as a competitive weapon and in an efficient manner.

Moreover, it is explained the definition, the process and the business model of the new emerging Lean approach.

Follows some example of real successful and innovative Startups which have revolutionized the world.

CHAPTER 2

INNOVATION

2.1 Definition of Innovation

One factor that always contributed to the success of an organization is the ability to innovate. The intense global competition and technological development have made Innovation a source of competitive advantage. Organizations that have the necessary resources, a powerful motivation to innovate and an organizational climate that would allow and encourage innovative ideas, are exactly those which will innovate quickly and successfully.

The capacity to innovate represents therefore the ability of continuously making and transforming knowledge and ideas into new products, processes and systems to the benefit of both the organization and the stakeholders.

Literatures offer a wider range of definitions of Innovation. J. A. Schumpeter was the first scholar to deal with the economic aspects related to Innovation processes. Schumpeter considers Innovation as an element that allows companies to achieve economic results superior to the competitors. According to Joseph Alois Schumpeter “*carrying out Innovations is the only function which is fundamental in history*”. He states that Innovation is a change that can affect every action of a company's life, and in “*The Theory of economic development*” he describes development as historical process of structural changes, substantially driven by Innovation which he divided into four types:

- Launch of a new product or a new species of already known product

- Application of new methods of production or sales of a product not yet proven in the industry
- Opening of a new market, the market for which a branch of the industry was not yet represented
- Acquiring of new sources such as the creation or destruction of a monopoly position

He believes that anyone seeking profits must innovate. He states that Innovation is a *“Process of industrial mutation, that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating the new one”*. Moreover, he considers Innovation as an essential driver of competitiveness and economic dynamics, and as the center of the economic change causing gales of “creative destruction” (a term created by himself in “Capitalism, Socialism & Democracy”).

Table 2.1 Definition of Innovation

Definition	Author
<ul style="list-style-type: none">• Introducing a new product or modifications brought to an existing product;• A new process of Innovation in an industry;• The discovery of a new market;• Developing new sources of supply with raw materials;• Other changes in the organization	Joseph Schumpeter (1930)
One of the two basic functions of an organization.	Peter Druker (1954)
Any new element brought to the buyer, whether or not new to the organization.	Howard and Sheth (1969)
The degree to which specific new changes are implemented in an organization.	Mohr (1969)
Broad utility concept defined in various ways to reflect a specific requirement and characteristic of a particular study.	Damanpour and Evan (1984)
<ul style="list-style-type: none">• Innovations are new ideas that consist of: new products and services, new use of existing products, new markets for existing products or new marketing methods.• Basic creative process.	Kenneth Simmonds (1986)
Generation, acceptance and implementation of new ideas, processes, products and services.	Thompson (1965)
Involves both knowledge creation and diffusion of existing knowledge.	Rogers (1998)
Successful production, assimilation and exploitation of novelty in the economic or social environment.	The European Commission Green (1999)
Innovation can be defined as a process that provides added value and a degree of novelty to the organization, suppliers and customers, developing new procedures, solutions, products and services and new ways of marketing.	Covin și Slevin (1991), Lumpkin and Dess (1996), Knox (2002)

Source: Authors Elaboration

In summary, Innovation is something “new” that gives companies a chance to achieve a competitive advantage by enhancing and sustaining high performance, attracting new customers, retaining existing ones, reinforcing ties with their distribution network and creating profits for the firm (Urabe, 1988; Gopalakrishnan and Damanpour, 1997; Chandra and Neelankavil, 2008).

2.2 Innovation typologies

As regards the typology of Innovations, Damanpour (1991) shows 6 types of Innovation:

- *Administrative Innovations* involve organizational structure and administrative processes. These Innovations are indirectly related to basic activities of the organization and more directly to the management of those activities (Damanpour and Evan, 1984, Kimberly and Evanisko, 1981, Knight, 1967). Administrative Innovations are facilitated by low levels of professionalism, high formalization and high centralization.
- *Technical Innovations* refer to products, services and technologies in the production process. They relate to basic activities of an organization and focus on product or process (Damanpour and Evan, 1984, Knight, 1967). This type of Innovation is facilitated by a high level of professionalism, low formalization and low centralization.
- *Process Innovations* are new elements introduced in the various processes carried out at the level of the organization. (Knight, 1967, Utterback and Abernathy, 1975).
- *Product Innovations* are represented by the new products or services introduced to meet the needs of the market. Such Innovations are reflected in new products or services on the market to the benefit of customers (Knight, 1967, Utterback and Abernathy, 1975).
- *Radical Innovations* are represented by the fundamental re-conceptualizing of a business (Markides, 1998). This type of Innovation can be approached on three

levels: product (new ideas or technology), process (new methods of product and services delivery to consumers) and the combination of the two levels mentioned above (Tushman and Nadler, 1986).

- *Incremental Innovation* refers to improving products, services and the existing processes (Leonard and Rayport, 1997).

Another classification of Innovation is given by Thompson (2004):

- *Creative Innovation*
- *Adoptive Innovation*

Creative Innovation refers to the ability of the organization to implement and carry out technological Innovation through its own system, usually materializing in new products or services.

Adoptive Innovation, instead, refers to the ability to use new ideas from outside the organization, adapting those ideas to implement change in the management system of the organization or in the relationship between the system's components. An adoptive approach to Innovation is addressed mainly to areas such as strategy or management by processes leading to new strategies, to a new company image or to new organizational structures.

2.3 Innovation Process

The process of Innovation is often compared to the process of evolution as it is fundamentally a dynamic process of improvement and adaptation which strengthens organizations' ability to survive and thrive. It can be considered as a technological Innovation of processes, products and services or an organizational and management

Innovation, which means the update of the business model and the organizations of all the activities.

Despite its complexity and unpredictability, a successful Innovation process is usually seen proactive rather than reactive, and can include some or all of five key elements:

- Recognition of a specific problem, challenge, or opportunity to be seized, in relation to the provision of humanitarian aid.
- Invention of a creative solution, or novel idea, which helps address a problem or seize an opportunity.
- Development of an Innovation by creating practical, actionable plans and guidelines.
- Implementation of an Innovation to produce real examples of changed practice, testing the Innovation to see how it compares to existing solutions.
- Diffusion of successful Innovations taking them to scale and leading to wider adoption outside the original setting.

Many studies have examined the various stages for the process of Innovation (Cooper, 1990; Gobeli and Brown, 1993; Goffin and Pfeiffer, 1999; Tidd, Bessant and Pavitt, 2005; Narvekar and Jain, 2006; Chandra and Neelankavil, 2008). For instance, Tidd, Bessant and Pavitt (2005) believe that there are four main stages at the heart of the process, these are: searching, selecting, implementing and learning. (see figure2.1)

The first step, “search”, goal is to seek and analyze internal and external environment of the organization, look for threats and opportunities for change (for

example, benchmarking between businesses or programs that encourage employees to propose new ideas).

The second step, “selecting”, aims to understand which of the ideas collected in previous step are feasible, taking into consideration technical aspects such as cost and time, and the organization's strategy.

The third stage is the implementation of the selected ideas, turning them into projects, which usually follows concepts related to project management and engineering.

Last step, “learning”, derives from the process as a whole, for the particularities, and especially the difficulties encountered on the way to bring something new to reality generate many lessons, to be learned and used in future Innovation processes.



Figure 2.1 Innovation Process

Source: Prepared by the author based on the concepts of Tidd J. and Bessant J. (2009) “Managing Innovation,” John Wiley & Sons

Gobeli and Brown (1993) say that the product Innovation process contains four basic stages which are: Discovery, Decision, Development, and Delivery. The main advantage of clustering the Innovation process into four stages is that it allows a general format for the discussion of problems and solutions. In addition, Gobeli and Brown (1993)

mention that although their research focuses on product Innovation, this framework can also apply to process or operational Innovations as well.

Wheelwright and Clark (1992) present another model for the Innovation process. Their model has six steps in which projects are defined, followed and evaluated according to a predetermined set of decision criteria. These stages are: idea, feasibility, capability, launch preparation, post launch evaluation and rollout contender.

One of the principal and most adopted Innovation processes is Robert Cooper's famous *Stage-gate process*. It is a model that enables firms to manage, control and direct their Innovation efforts. It divides an Innovation project into individual stages, which are very similar in terms of content and requirements. In between there are so-called gates, also as milestones, where decisions about the further procedure are made. Based on defined criteria and deliverables decisions are made whether the project will be continued or not. If the decision is positive, the framework conditions, objectives and deliverables are determined for the next stage. (see figure 2.2)

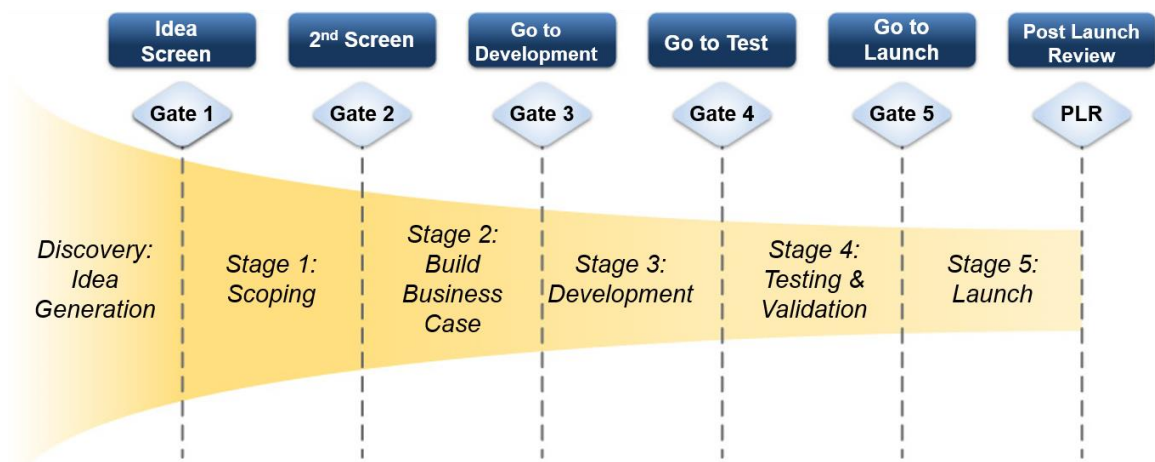


Figure 2.2 Stage Gate System.

Source: Cooper, D. P. (2001). Innovation and reciprocal externalities: information transmission via job mobility. *Journal of Economic Behavior & Organization*.

Moreover, every Innovation project requires rough planning, even if one deals with the future. This rough-cut planning can be based on the typical phases of Cooper:

- Front end Innovation
- Idea Realization and Development
- Implementation and Commercialization.

In the first phase (*Front end Innovation*), a variety of ideas are collected based on the strategic orientation, the strategic corporate goals and future trends and needs. Since there are usually plenty of ideas, the company should define and select which source of ideas has the highest potential.

Ideas are then evaluated because not all of them can be selected. It is necessary to identify which one has the greatest leverage, the greatest contribution to strategy, a potential positive impact on the revenues and guarantees high sales potential.

Once the ideas have been selected the intensive phase of *Idea Realization and Development* follows. Depending on the company's requirements, an Innovation concept, requirement specification, business case, business plan or business model canvas can be created as output. This specifies the development and implementation phase and the Innovation strategy of the project for the new product or service. The most important contents of this phase are the knowledge of customer requirements, opportunities and market potentials as well as the evaluation of feasibility and risks. For this reason, all risks and opportunities as well as customers and the environment are analyzed. All stumbling blocks should also be detected in this phase so that they do not become fatal in later phases.

The third phase (*Implementation and Commercialization*) it's done once the solution has been developed. In this phase plans are drawn up, suppliers of raw materials

and components are found, service processes must be established, and production processes has to be developed, so that the customer can buy and use the product or service.

The feasibility of the implementation should be taken into consideration during the development of the solution. Company has to make sure that the product does not fail in the market because this can cause a huge damage. Accordingly, the production costs are considered when designing the product and it must be clear in the development stage what is sourced, where and how in order to be able to calculate the costs. Therefore, the planning and conception of the implementation go almost hand-in-hand with the solution development.

The last step is about bringing the product to the potential customers. This requires the physical availability of the product. These include procurement, production and logistics based on defined concepts. All marketing and sales channels are activated. These activities can be summarized as Innovation marketing which uses the famous 4P tools (Place, Product, Promotion, price). At the end, the new product is transferred to product lifecycle management in the responsibility of product management. Based on the continuous evaluation and analysis of the product on the market (customer feedback or quantitative market analyzes) measures are taken to increase sales, margins and customer satisfaction and to further develop and optimize the product.

2.4 Innovation Strategies

Every company should adopt well-defined and long term-oriented Innovation strategies in order to stay on the market and to compete with other firms. Therefore, the strategy of the

company must exploit the technologies to generate short-term revenues and to look for new technologies in fields that are not yet explored.

In this case it is important to distinguish between *Explorative Innovations* and *Exploitative Innovations*.

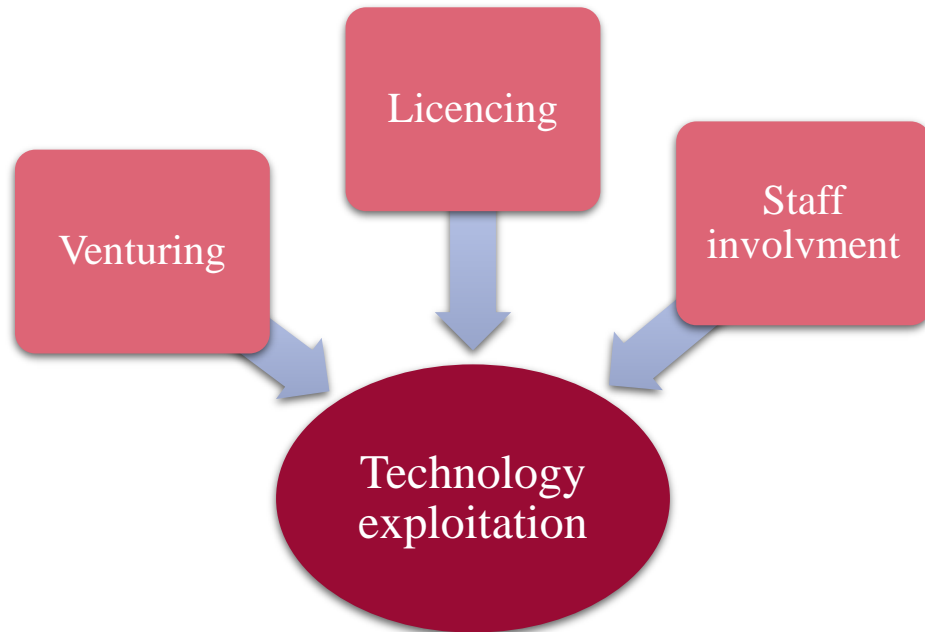


Figure2.3 Technology Exploitation.

Source: Van de Vrande, V., deJong, J.P.J., Vanhaverbeke, W., de Rochemont, M., (2009), Open Innovation in SMEs: Trends, motives and management challenges.

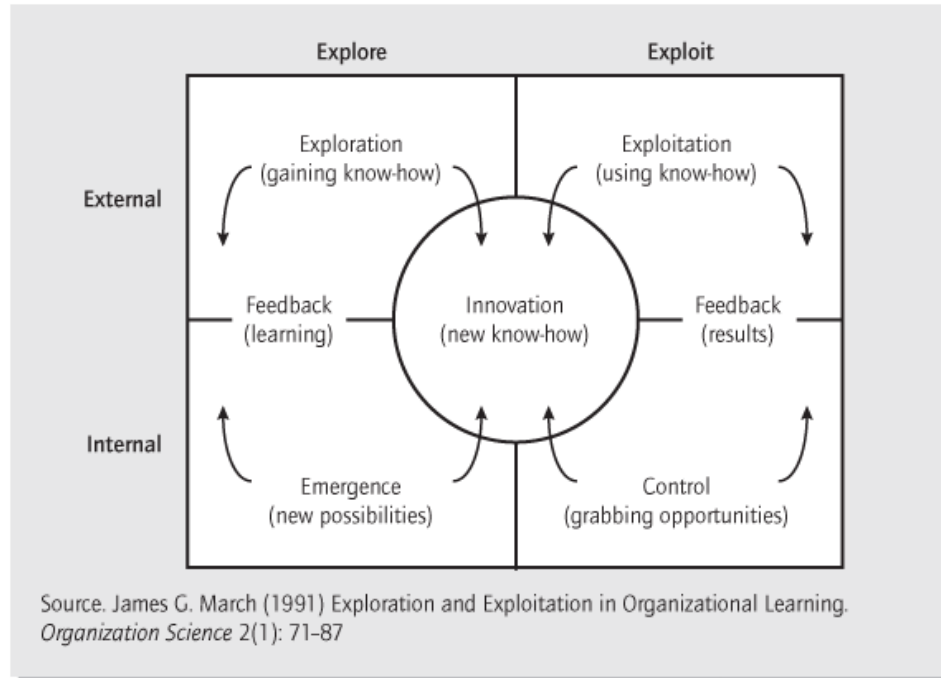


Figure 2.4 Exploration and Exploitation in Organizational Learning.
 Source: March J.G. (1991), "Exploration and Exploitation in Organizational Learning".

According to March (1991) *Exploitation* includes activities such as refinement, choice, production, efficiency, selection, implementation, execution. He also adds that the essence of exploitation is the refinement and extension of existing competencies, technologies, and paradigms.

Benner and Tushman, state that exploitative Innovations involve improvements in existing components and build on the existing technological trajectory.

Exploitative Innovation is conducted to meet the needs of customers and current markets, expanding the existing products and services, and also refining and improving the efficiency of the processes. It applies known technology into the process' and product's development. It reduces the organization's ability to discover opportunities and respond to environmental changes.

On the contrary, *Exploration* is a radical Innovation which develop new technologies. It requires greater diversity of knowledge than exploitation to enhance different set of capabilities. Exploration includes things captured by terms such as search, variation, risk taking, experimentation, play, flexibility, discovery, Innovation. (March 1991).

Exploratory Innovation is developed to meet emerging demands of customers or new markets, promoting the introduction of new technology in products, services and processes that are not yet operable. It requires new knowledge and information, which in turn requires a consolidated primary knowledge base.

Holmqvist (2004) found that exploration and exploitation require significantly different structures, processes, strategies, capacity, and culture. In general, exploration is associated with an organic structure, systems that are not rigid, improvisation, and autonomy. Exploitation, differently, is associated with mechanical structures, more rigid systems, routine, control, and bureaucracy (Holmqvist, 2004).

March emphasizes that the returns from exploration are systematically less certain, more remote in time, and organically more distant from the focus of action and adoption. Instead, the results relating to exploitation are more precise and short-term.

Other strategies used in the Innovation process can be *Market pull* and *Technology push*. The main difference between the two strategies lies on how customers are approached.

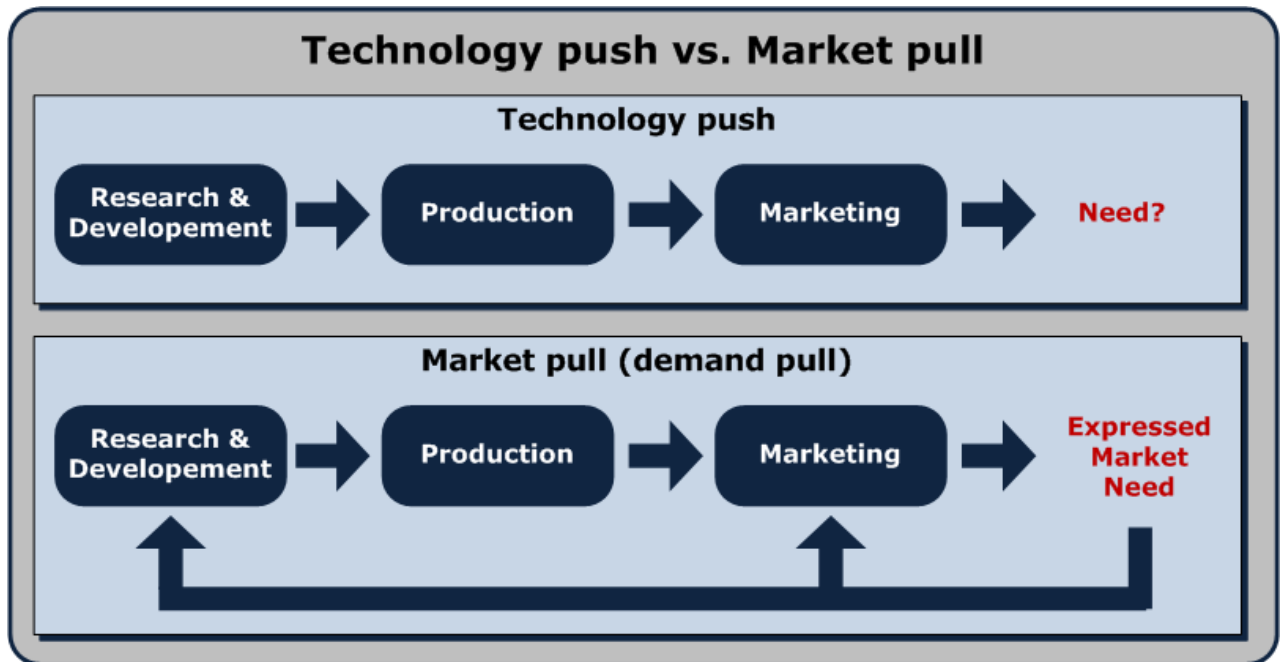


Figure 2.5 Market Pull and Technology Push

Source: https://commons.wikimedia.org/wiki/File:Technology-Push_Market-Pull.png

Marketing pull refers to the need for a new product or a solution to a problem, which comes from the market place. The need is identified by potential customers or market research. A product or a range of products are developed, to solve the original need. Since the customer/market actually asks for a new Innovation, little in the form of direct radical creativity is needed. A well-oiled research and development team however, has to translate the needs of the customer/market into practical product proposals. In this regard the organization doing the Innovation has to continually have good contact with the customer/market to ensure the product meets their expectations.

Technology Push usually does not involve market research. It tends to start with a company developing an innovative technology and applying it to a product. The company then markets the product. It needs a strong technology base. By doing basic research, new materials, methods and techniques are discovered. When these new ideas are incorporated

into products, technology push Innovation occurs. When this happens, the customer/market is often ignorant of the characteristics and advantages of the product and needs to be educated. For this reason, a lot of market development is usually required to launch such a technology driven product.

2.5 Success Factors of Innovation

Companies should consider the success factors of a high-quality Innovation process and introduce them into their new product process (Cooper and Kleinschmidt, 2007). New product success is a critical challenge as we move into the future; so, it is important to consider critical success factors that can enable better performance of a new product and increase the chances of its success (Cooper and Kleinschmidt, 2007; Simon, 2009).

There may not be a single set of failure or success factors, but rather, a collection of main determinants of performance which rely upon the kind of Innovation the company is developing (Montoya-Weiss and Calantone, 1994).

The concept of success for product development has many aspects and each of them might be measured in a variety of ways; new product performance is defined by several widely used groupings of measures (Griffin and Page, 1993). For example, Biemans (1992) argues that factors influencing the success of Innovations can be classified into five broad categories: Marketing, Management, Technology, Financial resources and External events.

Cooper and Kleinschmidt (2007) in their study exposed nine success factors that propel performance at the business unit level: a high-quality new product process, a dequate resources of people and money, a defined new product strategy for the business unit, R&D spending for new product development (as a percentage of sale), senior

management committed to, and involved in, new products, an innovative climate and culture, High-quality new product project teams, the use of cross-functional project teams, Senior management accountability for new product results.

Keizer and Halman (2007) identified the factors that researchers have deemed crucial for the success of radical Innovation projects and categorize them into five groups: strategy (technology as well as market strategy), product characteristics and production processes, human capabilities, internal organization and knowledge.

Van de Ven (1986) says that the factors to be taken into consideration are ideas, transactions, people, and context over time.

Table 2.2 Success Factors to Innovation

Factors	Authors
<ul style="list-style-type: none"> • Marketing • Management • Technology • Financial resources and External events 	Biemans (1992)
<ul style="list-style-type: none"> • Customer orientation • Continual improvement • Employee involvement 	Gobeli and Brown (1993)
<ul style="list-style-type: none"> • Market Environment Factors • Strategic Factors • Development Process Factors • Organizational Factors 	Montoya-Weiss and Calantone's(1994)
<ul style="list-style-type: none"> • Differentiated • Superior products • Sharp • Early product definition • Solid up-front homework • Technology actions executed well • Marketing actions executed well • True cross-functional teams. 	Cooper (1998)
<ul style="list-style-type: none"> • Strategy (technology as well as market strategy) • Product characteristics and production processes • Human Capabilities • Internal organization • Knowledge. 	Keizer and Halman (2007)
<ul style="list-style-type: none"> • A high-quality new product process • Adequate resources of people and money • A defined new product • Strategy for the business unit • R&D spending for new product development (as a percentage of sale) • Senior management committed to, and involved in, new products • Innovative climate and culture • High-quality new product project teams • The use of cross-functional project teams • Senior management accountability for new product results 	Cooper and Kleinschmidt (2007)
<ul style="list-style-type: none"> • Fit with company • Patent protection • Proactive vs. reactive stance • Organization • Financial requirements • Market size • Customer needs • Distribution channels • Competition • Government regulations 	Simon (2009)

Source: Author elaboration

Contrarily, according to Biemans, 1992, Andrews, 2007, Chandra and Neelankavil, 2000 some of the most important causes of failure, are:

- Inadequate funding
- Risk avoidance
- Incorrect measures (higher cost than anticipated)
- Inadequate market analysis (Insufficient market)
- Product defects
- Poor timing
- Competitive reaction
- Inadequate sale effort
- Inadequate distribution
- Managerial incompetence and a lack of technology base

As mentioned before, different factors have been identified based on different point of views in the literature which have an effect on new product. However, most of the researchers did not link a factor to a particular stage of the Innovation process.

CHAPTER 3

OPEN INNOVATION

3.1 Closed Innovation

According to Henty Chesbrough, the traditional Research and Development model is described as Closed Innovation. In this approach a development project is initiated internally by a company and is then carried out by the employees of that company until it is finished and then released to the market without any aid from external parties.

The paradigm of Closed Innovation says that successful Innovation requires control and ownership of the IP (Intellectual Property). All the ideas should be controlled and managed by the company. In addition, the R&D units and the entire NPD (New Product Development) process are integrated within the company.

The main characteristics of the Closed Innovation paradigm according to Chesbrough are:

- A company should hire the best people in the industry
- In order to bring new products and services to the market a company must discover and develop them internally
- If a company makes an invention, they get it to a market first
- A company that gets an Innovation to a market first usually win
- If a company leads the industry in R&D investments, it will discover the best and the most ideas and hence will lead a market as well
- A company needs control to the IP to prevent competitors to profit from it.

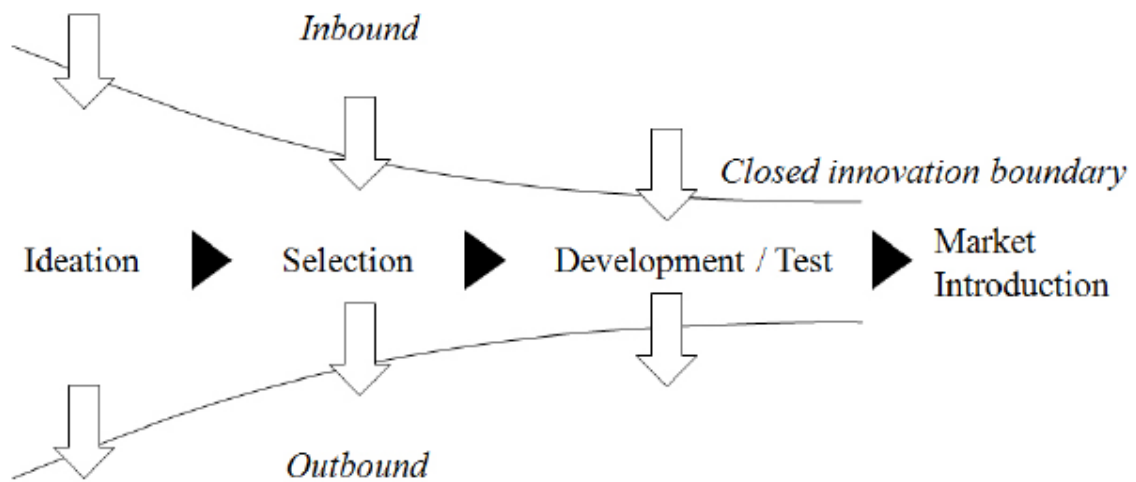


Figure 3.1 Funnel of Closed Innovation

Source: Chesbrough, H.W., (2003a),

Open Innovation: The new imperative for creating and profiting from technology. Boston, Mass.: Harvard BusinessSchool Press.

3.1.1 Limits

Chesbrough states that Closed Innovation doesn't allow companies to bring new products and services to market, to realize more sales and higher margins and then to reinvest in more internal R&D, which led to further breakthroughs.

There are also several factors that affected how knowledge is created, distributed and transformed in processes for developing new products and services. All these factors combined erode the Closed Innovation model.

The first factor that affects the CI is the growing mobility of highly experienced and skilled people. Another factor is the growing presence of private Venture Capital, which specialized in creating new firms that commercialized external research and converting these firms into growing valuable companies. (Chesbrough, H.W., 2003a)

Furthermore, the increasingly fast time to market for many products and services, challenged the logic of Closed Innovation, making the shelf life of a particular technology even shorter. (Chesbrough, H.W., 2003a)

Moreover, the increasingly knowledgeable customers and suppliers further challenged the firms' ability to profit from their knowledge silos. (Chesbrough, H.W., 2003a)

Table 3.1 Factors influencing the knowledge landscape.

FACTORS	DESCRIPTION
Availability and mobility of skilled workforce	With the increased access to sources of knowledge and improvement of communications; knowledge was distributed to other sources out of tradition R&D units. In addition with globalization, the mobility of employees increased.
Growth of the Venture Capital market	During the 80's and 90's the Venture Capital market growth to support new ventures.
External options	Unused intellectual property could be taken to external path in form of spin-offs and Startup companies.
Increased capabilities of external suppliers	The number of specialized suppliers has increased in the last decades.

Source: Chesbrough, H.W., (2003a),
Open Innovation: The new imperative for creating and profiting from technology. Boston, Mass.: Harvard Business School Press.

The situation in which these erosion factors have taken root, Closed Innovation is no longer sustainable. For these situations, a new approach “Open Innovation” is emerging.

3.2 The Open Innovation Paradigm

Nowadays, no one person or company can hold all the knowledge and information within any given field. As a contrast to the traditional process, Henry Chesbrough (Chesbrough 2003) in his book *Open Innovation: The New Imperative for Creating & Profiting from the technology*, coined the term of Open Innovation.

Chesbrough propose an Innovation process where "*projects can be launches from either internal or external technology sources, and new technology can enter into the process at various stages. In addition, projects can go to market in many ways*".

With Open Innovation, companies no longer only rely on its internal knowledge but are instead encouraged to make full use of external sources of technology and information. "*Purposeful inflows and outflows of knowledge to accelerate Innovation internally while also expanding the markets for the external use of Innovation*" (Chesbrough 2006).

The paradigm Open Innovation gives firms numerous benefits: access to sources of knowledge outside firms' boundary, reduced time to market of new product and services, maximization of intellectual property, expansion of firms' knowledge base.

The author defined Open Innovation as follows: "*Open Innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology. Open Innovation combines internal and external ideas into architectures and systems whose requirements are defined by a business mode*". Henry Chesbrough, *Open Innovation: The New Imperative* (2003).

This definition emphasizes that ideas should come from inside and outside the organization and the market.

3.3 Closed Innovation vs Open Innovation

Chesbrough also underlines the shift from Closed Innovation paradigm, characterized by companies with huge R&D centers, vertically integrated industries, where knowledge is centered and exploited within the firm's boundaries (see figure 3.2); towards Open Innovation paradigm, where boundaries of firms are permeable, allowing ideas and Innovations to flow inside and outside the organization (see figure 3.3).

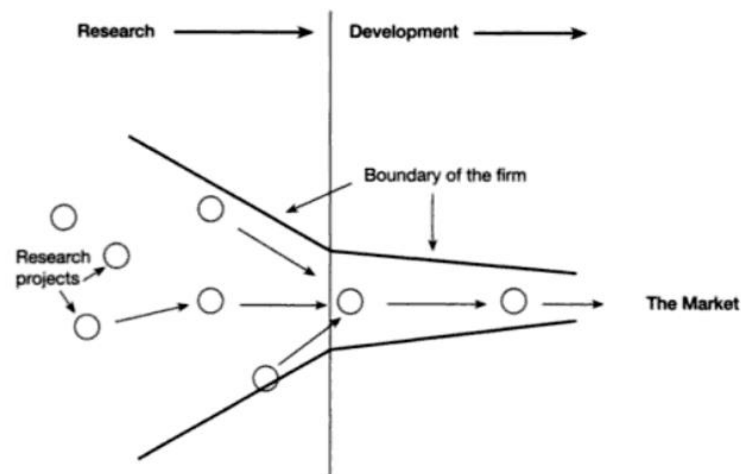


Figure 3.2 Closed Innovation Paradigm for managing R&D.

Source: •Chesbrough, H.W., (2003a), *Open Innovation: The new imperative for creating and profiting from technology*. Boston, Mass.: Harvard Business School Press.

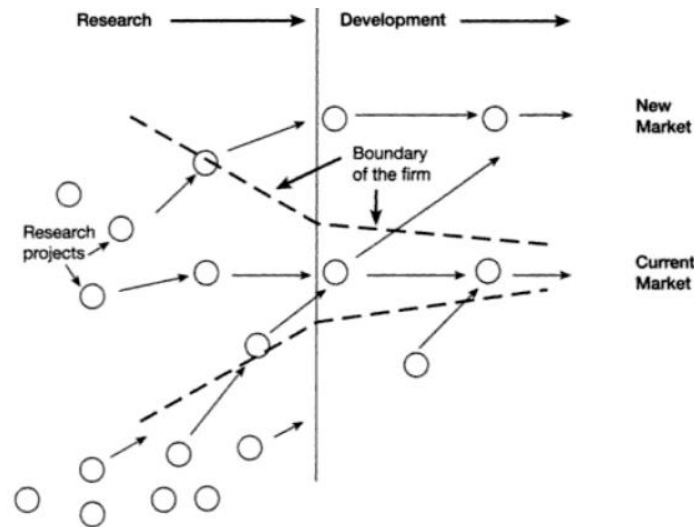


Figure 3.3 Open Innovation Paradigm.

Source: Chesbrough, H.W., (2003a)

Open Innovation: The new imperative for creating and profiting from technology.
 Boston, Mass.: Harvard Business School Press.

As can be seen, in the old Innovation process, research projects can only be formed inside firms, and then developed and commercialized into the market that the company normally operates on. In contrast, in the Open Innovation process, research projects can be formed in collaboration with external partners and then developed and commercialized into conventional or new markets. Also, projects created within the firm can receive input and resources from external sources. In addition, research projects within firm's R&D department can be brought outside of firm, and then developed and commercialized into new markets.

The major difference is that in the Open Innovation process, not only the employees, but also external partners and people possessing special competences within niche areas can work together with the firm and create value as long as the firm chooses a suitable Open Innovation process.

Closed innovation	Open innovation
The smart people in our field work for us.	Not all smart people work for us. We need to work with smart people inside and outside the company.
To profit from R&D, we must discover it, develop it and ship it ourselves.	External R&D can create significant value. Internal R&D is needed to claim some portion of that value.
The company that gets innovation to market first will win.	Building a better business model is more important than getting to market first.
If we create the most and the best ideas in the industry, we will win.	If we make the best use of internal and external ideas, we will win.
We should control our IP, so that our competitors cannot profit from it.	WE should profit from other's use of our IP (license out) and we should license in other's IP whenever it advances our business model.
We will own all results from contract research with universities.	We will partner with universities to create knowledge and encourage use outside our field.

Figure 3.4 Closed Innovation vs Open Innovation.

Source: Adapted from

Chesbrough, H.W., (2003a), *Open Innovation: The new imperative for creating and profiting from technology*. Boston, Mass.: Harvard Business School Press.

3.4 Benefits of Open Innovation

Open Innovation offers many benefits to companies working with product or service development and has therefore quickly gained followers.

Open Innovation provides firms more flexibility about when to start the internal portion of the Innovation process, and the close cooperation with suppliers and customers can increase the creative capacity by making the company aware of market conditions and needs (Dyer and Singh, 1998).

This method allows innovating companies to sense developments in a wide range of externally developed inventions by buying minority stakes in (high-tech) Startups, participating in Venture Capital funds, or by providing educational investments in promising projects at universities or research labs. This is an option-creation process in order to get more information and learn about projects or technologies with uncertain payoffs.

Thanks to this strategy, companies learn early on about new technologies. It allows companies to scan a much wider range of the available technologies or new market developments, instead of just writing options on internal projects alone. The ability to access a broader range of technologies and market opportunities has financial value because there may be more varied opportunities, and some of these may be uncorrelated with internally perceived opportunities. The staged process in which new technologies are developed and commercialized into new business opportunities can be examined as a compound option.

Moreover, there are also benefits related to the risk of new product development. If a product is developed in collaboration with the customer, there is already a buyer at the end of the product development cycle, and so the company is exposed to less risk when investing money in such a development process (Ragatz, et al., 2002).

Vanhaverbeke et al. (2008) identifies four major advantages of implement open Innovation:

- Early involvement in new technology and/or business opportunities
- Access to other organization's R&D
- Access to Venture Capital funds

- Joint venture and educational investments at university or research laboratories.

Another advantage that may accrue to business that engage in Open Innovation is the shorter time to market with less costs and risk. Obtaining complementary skills and technology from external sources dispenses the need to invent all inputs, thereby reducing costs and risks associated with product development (Huizingh 2010; Wallin & Van Krogh 2010). Especially if they work with start-ups, which must innovate and quickly in order to survive, in order to survive, large firms can develop new offers at a faster rate than normal through collaboration.

Moreover, across industry sectors, early integration of suppliers into the Innovation process has been found to considerably enhance Innovation performance

Table 3.2 Motives to open up the Innovation process.

<p>Strategic motives</p> <ol style="list-style-type: none"> 1. Reducing time to market 2. Monitoring potentially “disruptive technologies” 3. Access improved product features 4. Improve the internal innovativeness by leverage external resources 	<p>Enkel, Gassman & Chesbrough 2009; Chesbrough & Crowther, 2006; Dröge et al., 1999</p>
<p>Financial motives</p> <ol style="list-style-type: none"> 1. Access to new geographical markets 2. Improve product margins and reduce risk in technology development 	<p>Teece 1998; Chesbrough & Crowther 2006; Liechtenhaler & Ernst 2009; Reepmeyer et al., 2011</p>
<p>Technological motives</p> <ol style="list-style-type: none"> 1. Fill the development pipeline and accessing new ideas 2. Allow a variety in product development 3. Access new or supplementary product or process technologies 	<p>Nambisan & Sawheny 2007; Cesaroni, 2004; Enkel & Gassman 2004</p>
<p>Operational motives</p> <ol style="list-style-type: none"> 1. Earlier identification of technical problems 2. Fewer engineering change orders and the possibility to access prototypes 	<p>Enkel & Gassman 2004; Ragatz et al., 2002</p>

Source Author Elaboration

3.5 Barriers to Open Innovation

Despite the success of some pioneering firms, many other are often reluctant to excessively opening up their Innovation processes, due to potential risks (Liechtenhaler & Ernst 2006; Rivette & Klein 2000). The most prominent risks associated with the “opening up” of the Innovation process, according to Liechtenhaler & Ernst (2006) are:

- The risk of limiting internal development of critical technological knowledge;

- The risk of increasing dependency on external technology providers;
- The risk of increased complexity derived from additional interfaces with external parties.

Alternatively, Mortara, suggests there are particular four critical areas regarding the implementation of Open Innovation that have to be addressed: culture, procedures, skills and motivation.

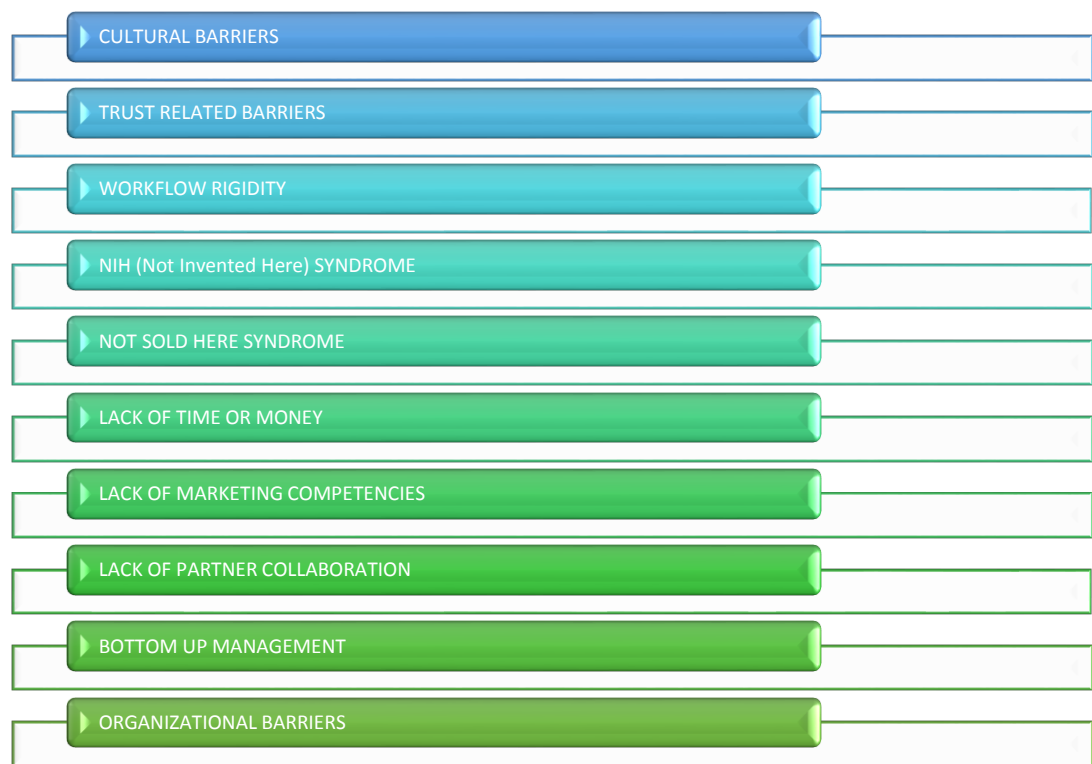


Figure 3.5 Barriers to Open Innovation
Source: Author’s elaboration

Cultural barriers: Overcoming issues of organizational culture is a major challenge opening up the Innovation process (Golinghtly et al., 2012; Mortara et al., 2009). The culture concern is especially predominant among older firms with well-established norms and corporate values (Golinghtly et al., 2012). Opening up the Innovation process will

mean doing things differently or even contradictory before, which may require a change in the deepest level of culture, i.e., the basic underlying assumptions, which is proved to be very challenging (Mortara et al., 2009). Within a big organization, it is however likely to find several sub-cultures, who react very different to the Open Innovation concept (Golightly et al., 2012; Mortara et al., 2009).

Trust related barriers: Managers who want to make use of a more Open Innovation process will have to make new decisions in development activities, answering the questions: when?, how?, with whom?, with what purpose and in what way?, do we plan to use and acquire external knowledge and technology (Chesbrough & Crowther, 2006). Holmström & Westergren (2012) found that trust can be a barrier or conversely an enabler to implement those decisions. They found that the move towards a more Open Innovation environment is facilitated through the ways in which trust in people (e.g. the social networks) makes trust in technology possible. They point out that trust in information technology, for example, is especially important for the running of modern organizations and likewise an enabler of social action.

Workflow rigidity: Describes a situation in which works flows and internal processes are always done in a specific way that is not adapted.

NIH (not invented here) syndrome: Situation when organizations or their parts only look at internally-derived ideas and technologies, because they are reluctant to adopt any approach that supports the development of products or services using external knowledge or technologies (see Katz & Allen 1989).

"Not-Sold-Here" syndrome: Similarly, many organizations seek to protect the ideas they have developed, missing the opportunities for external commercialization. If

they created the IP, they argue, then this should not be shared with anyone outside of the company.

Lack of time or money: Bad anticipation of maturation/integration time and cost. An OI project should be planned and budgeted upfront similarly to internal projects, including a specific “maturing and transfer” stage. Integration time needs to be anticipated, reviewed with the provider, and budget adjusted.

Lack of marketing competencies/ information: Lack of interaction between R&D and product marketing. An OI project should involve the whole product core team (Marketing, R&D, purchasing, Quality).

Lack of partner cooperation for development: Wrong fit between the solution provider and the seeking company. Bad project execution. Information and training conducted. Involve professional project management and quality monitoring, include terms in supplier contracts.

Other barriers can also be lack of internal commitment, bottom up management, insufficient resources, allocating wrong task to pilot, insufficient top management support, unrealistic expectations, legal barriers and organizational barriers.

3.6 How to Overcome the Barriers

Several studies show that involvement of top management in the transition towards a more open environment, has helped to change organizational culture (Chesbrough & Crowther 2006; Golightly et al., 2012; Mortara et al., 2009). Companies who successfully overcame the NIH syndrome provided strong leadership, a focus and clear direction, accompanied by means of effective communication (Golightly et al, 2012).

In order to overcome these barriers, firms should change their Organizational culture: the shared values, policies and unwritten rules that drive the behavior of the employees. For Open Innovation to work, the culture needs to embrace the characteristics that Open Innovation embodies: collaboration, knowledge sharing, creativity, and new ways of thinking.

For this reason, a company can assign internal “champions”, who interacts with different functions across the enterprise, supporting the integration of the new technology in the current development phase-gate process (Chesbrough & Crowther, 2006).

Furthermore, to minimize the risks associated with Open Innovation, companies should continue to develop their internal technology and knowledge base, in order to benefit from relationships and technologies of external partners also in the future (Liechtenhaler & Ernst 2006; Mortara & Ford 2012). They may also consider acquiring external knowledge from multiple partners to diversify risks (Liechtenhaler & Ernst 2006).

There isn't a common solution for all companies to overcoming the cultural barriers. Each organization has different concerns, and needs to make changes to their values, behaviors and working approaches in different ways.

3.7 Open Innovation Models

Many companies may already be using Open Innovation processes without knowing that these are a part of a larger system of Innovation tools. By making companies more aware of the ideas of Open Innovation, they can increase their innovative capacity and find new activities that complement the ones that they are already using.

Authors identify three forms of the Open Innovation model: inbound, outbound activities and the so-called “coupled Innovation process”.

Inbound activities bring new knowledge into the company’s development process, while outbound activities are external ways to bring the company’s ideas to the market (Chesbrough, 2003; Parida, et al., 2012; Gassmann et al., 2010).

Inbound Activities typically include networking with external partners (such as universities or other companies) to bring their knowledge into the company, cooperating with customers to let them shape the outcome of the development, and licensing of intellectual properties or direct cooperation with companies within other fields to develop a joint product (Parida, et al., 2012).

Outbound Activities focus on getting the most out of a company internally developed (or externally acquired) Innovations by bringing them to the market in ways that include external partners as opposed to the company releasing it by themselves. Outbound activities include the licensing of company intellectual properties to be used by other companies (Parida, et al., 2012), but can also take the form of a spin-off of a new tech-focused company.

The so-called “Coupled Innovation Process” combines the inbound and outbound dimensions: rather than sharing existing resources and expertise, firms work together to develop new knowledge and solutions. (Gassman & Enkel 2004). This type of collaboration can involve close integration, for instance joint venture or a loosen affiliation such as engagement through an Innovation competition.

Studies have shown that most companies tend to mainly use inbound Open Innovation (Chesbrough, 2006; Bianchi, 2010; Grönlund, et al., 2010). The main reason

for this is believed to be the lower level of initial commitment that is required for inbound activities. Outbound activities require more resources and dedication by the company (Parida, et al., 2012).

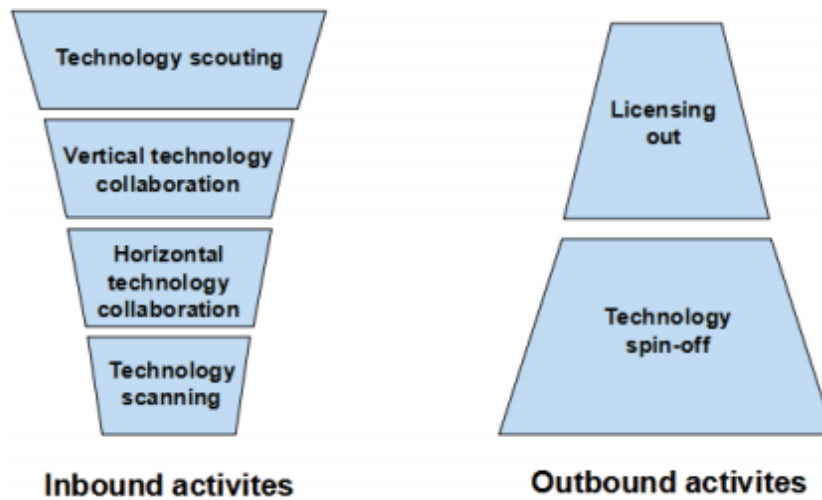


Figure 3.6 Inbound and Outbound activities
Source: Author's Elaboration

3.7.1 Inbound Open Innovation Activities

Inbound activities can be divided into four sub-categories:

- Technology Scouting: A process in which a company survey the market to detect new technologies that can provide opportunities or create threats for it. Technology scouting is both useful for being aware of the company's position as well as the position of its competitors. The surveyed technology also gets absorbed and becomes an input into future development work (Katila, 2002; Laursen and Salter, 2006; Lichtenthaler and Ernst, 2007; Bianchi, 2010).

- Vertical Technology Collaboration: is the term for when a company develops a product or service together with either a supplier (upstream collaboration) or a customer (downstream collaboration) (Baum, et al., 2000). To be considered Open Innovation, the company should not merely consult with suppliers/customers about their opinions, but rather involve the outside partner as a key stakeholder in the development process (Chesbrough, 2003). There are several methods of vertical collaborations.
- Horizontal Technology Collaboration: refers to projects carried out with external partners that are on the same level as the company itself, i.e. not a supplier or a customer. It can refer to collaborations with companies within the same industry, or a totally different one. It can also be with both competitors and partner companies. Collaborations with government agencies and universities are also included in horizontal technology collaboration. Horizontal collaborations are not only used to gain access to new knowledge but can also be utilized to find uses for a company's Innovations in new markets (Pittaway, et al., 2004). Many of the well-known examples of Open Innovation fall under this category, such as idea competitions, Innovation communities and collaborations between companies and the academia.
- Technology scanning: Companies instead of spending money on an internal R&D department, they search for existing ideas and patents for sale or technologies available to license. They save a lot of time in the development process and can bring Innovations to the market faster, as well as saving money on internal R&D costs.

Technology sourcing method	Typical Duration	Advantages	Disadvantages
Internal R&D	Long term	<ul style="list-style-type: none"> Build absorptive capacity Exclusiveness of technology and knowledge exploitation 	<ul style="list-style-type: none"> May not always be sufficient to keep pace with speed and complexity of technological developments in high-technology industries High commitment Low to medium reversibility
Licensing	Fixed term	<ul style="list-style-type: none"> Fast technology access Lower development cost Less technology and market risks Low commitment and high reversibility 	<ul style="list-style-type: none"> Loss of control over decision-making due to contract constraints Competitive advantage may depend on exclusive licence
Joint R&D agreements	Medium to long term	<ul style="list-style-type: none"> Explore emerging technologies Define and establish standards Access to public funding Reduced risk Exploit established technologies Develop system solutions 	<ul style="list-style-type: none"> Potentially limited flow of technological knowledge Knowledge leakage Opportunism risk
Innovation challenge	Short term	<ul style="list-style-type: none"> Crowdsourcing broadens base of potential collaborators Cost-effective Reduced risk due to arms-length affiliation 	<ul style="list-style-type: none"> In-house, follow-on R&D may enhance control over technology developed IP management may be more complex with many contributors
Corporate venture capital	Flexible	<ul style="list-style-type: none"> Window on technology Option to defer high commitment of resources High reversibility 	<ul style="list-style-type: none"> Information asymmetries between new venture and investing firm Modest control over development of technology
Joint ventures	Long term	<ul style="list-style-type: none"> Technology convergence Define, establish standards Smoother information flows Coordination and control Exclusivity of technology ownership 	<ul style="list-style-type: none"> Organizational risk High commitment Low to medium reversibility
Acquisitions	Long term	<ul style="list-style-type: none"> Hierarchical control over new technology, know-how Short-cut to new technologies 	<ul style="list-style-type: none"> Highest degree of commitment Low reversibility

Figure 3.7 Technology sourcing methods

Source Herzog, P. (2008). Open and Closed Innovation: Different Cultures for Different Strategies.

3.7.2 Outbound Open Innovation Activities

Outbound activities can be divided into two sub-categories:

- Licensing Out: Firms can achieve monetary and strategic opportunities. For instance, The American company Texas Instruments, generated hundreds of millions of dollars in annual licensing revenues (Rivette and Kline, 2000). IBM's licensing revenues of more than \$ 1.2 billion in 2004 also illustrate the increasing importance of outbound Open Innovation (Arora et al., 2001; Chesbrough, 2006). With regard to strategic opportunities, firms can establish their technologies as industry standards, and/or gain access to external technology (Grindley and Teece, 1997).
- Technology Spin-off: As corporate strategies increasingly focus on generating value, research intensive companies often aim to exploit their technologies externally. Under such circumstances, technology spin-off is the other common outbound Open Innovation. Ndonzuau et al. (2001) describe the basic process steps for technology spin-off. In the first stage, business ideas are generated; in the second, new venture projects are finalized, in the third spin-off firms are launched, and finally, the creation of economic value is strengthened.

CHAPTER 4

STARTUP IN THE OPEN INNOVATION FIELD

4.1 Definition of Startups

The term Startup refers to new business projects characterized by Innovation and growth (Bhide, 2000). Startups launch a new product or service resulting from a brilliant idea in a difficult and risky context. *“Startup Company is a new organization within the early years of life cycle”* (Tidd and Bessant, 2009).

Business Dictionary defines Startup as:

“Early stage in the life cycle of an enterprise where the entrepreneur moves from the idea stage to securing financing, laying down the basis structure of the business and initiating operations or trading.”

According to Blank et al. (2012, xvii), a Startup is a temporary organization searching for a scalable, repeatable, profitable business model, and at the outset the Startup business model is a canvas with ideas and guesses, but it has no customers and minimal customer knowledge.

Blank et al. (2012, xix) highlights that a Startup is not a smaller version of a large company. There are different types of Startups, for example small Startups, scalable Startups, buyable Startups, social entrepreneurs and large company entrepreneurship. Each of these five Startup types has entrepreneurship and Innovation at its heart and they all improve their changes for finding the right way to success through the use of customer development. (Blank et al. 2012, xix.).

Ries (2011, 27) states that a Startup is a human institution designed to create a new product or service under uncertain conditions.

4.2 Open Approach in Startups

Open Innovation, as was explained in the previous chapter, usually implies cooperating with different external agents, such as customers, suppliers, competitors, universities or research centers (Wallin & von Krogh, 2010).

According to Eisenhardt & Schoonhoven, the adherence to an open approach can facilitate the growth and success of a Startup.

Startups are known to be characterized and handicapped by their smallness and newness (Stinchcombe, 1965). Because of their small size, Startups usually do not have the human and financial resources to bring a new technology or product to the market (Neyens, Faems, & Sels, 2010). External sources are therefore considered essential in the Startups' Innovation process, since Startups can acquire the resources they lack (Hite & Hesterly, 2001). External partners enhance the strategic position and legitimacy of a Startup (Eisenhardt & Schoonhoven, 1996), since they act as endorsements by building public confidence about the value of the Startup and its products (Stuart, 2000).

Startups are characterized by flexibility, innovative capabilities and customer knowledge. On the one hand, they are also marked by limited market knowledge and lack of financial resources which obstructs the Innovation process, since they do not have enough financial resources to cover high R&D expense. Startups are highly innovative thanks to their flexibility, in fact they do not have formal and rigid routines that might block more unstructured Innovation processes.

Moreover, they do not suffer from structural inertia, which limits the ability of firms to introduce Innovations because it restricts firms from making adjustments changing the way they do things (Criscuolo et al. 2012; Katila and Shane 2005).

For this reason, Startups are better suited to develop radical Innovations since they are viewed as a source of “creative destruction”; their flexibility and absence of formal routines allow them to introduce revolutionary products to the market.

In addition, Startups are considered to be an important source of manufacturing Innovation. In order to create an effective innovative ecosystem, Startups need to build partnerships and networks with customers, universities, suppliers and the final consumers (Henry Chesbrough, 2013). These organizations can be further divided into several categories: universities, funding organizations, support organizations (like Incubators, Accelerators, co-working spaces etc.), research organizations, service provider organizations (as legal, financial services etc.) and large corporations.

4.3 Startup Process

All Startup process begins with an idea. The founder has an idea that they wish to pursue as a business. From an idea, the founder will have to put together three things: Team, Product and Market.

Phases:

- 1) **Ideation:** In this stage, the Startup founder(s) builds, sharpens, polishes their “potential scalable product or service idea” for a big enough “target market”. There is no need for any team or resources at this stage of Startup. A significant amount of time goes into the market research, collecting data about primary and secondary

audience. The end outcome is a very simplified business plan document that defines all the key variables about the business in a nutshell. Most importantly, at the end of this stage is to know, who would pay for the product and service and why?

- 2) **Concept:** Once founders are convinced about their core Startup idea, the next stage is to find the core team of people whom they would want to be part of their journey. A lot of Startups (especially tech Startups where founders are programmers and core architects) want to keep their idea within the closed room till they get the venture fund. Usually it delays the project considerably as they end up doing a lot of non-specialized tasks by themselves. In the concept development phase, they should start creating their actual business plan with estimated financials of budgets, possible revenue and key company milestones for the next 2-3 years. Identifying the core team and involving them in the ideation process is absolutely critical as this would set the stage for actual business roll-out.
- 3) **Commitment:** This is the stage when the founders actually start building the MVP or Minimum Viable Product for the users to test their business idea. An MVP is one of the most important stages in any Startup business. Not just it allows the founders to calibrate their efforts and product idea, it is the stage when they can start marketing about their product/service to prospect angel investors (not VCs). The commitment stage is also critical to define the roles of the founding team & the shareholding pattern for the first 2-3 years of business. Most of the early stage hiring happens during this stage of Startup. The team sizes are thin, and the founders literally bootstrap it to the maximum by doing multiple roles.

- 4) **Validation:** Validation or ‘proof of concept’ is one of those stages of Startup business where they have to live with a great degree of vulnerability, both from inside & outside. In the validation stage, founding team has to show maximum value for all stakeholders, starting from its current customers, its employees to current angel and potential investors. In many ways, this stage decides the fate of the business idea, and hence it gives the maximum stress to the Startup owners. On one side, the founders are struggling to find the right product strategy and brand positioning that would allow them to attract potential venture investment, and on the other side, there is a continuous pressure to show some running profits and ensure customer delight. Incidentally, most of the Startups lose their plot during this stage of business.
- 5) **Scaling up:** This stage usually starts after the Startup has received the investment and they start looking to scale the length and breadth of their business operations. A significant amount of time goes into hiring resources, marketing their product in the target markets to key audience, building a strong word of mouth PR, and accelerating revenues.
- 6) **Establishment:** This stage is actually subject to how the business idea has performed. Once achieved a critical mass of customers, the Startups enter the growth stage in which they can diversify their business through possible acquisitions of smaller companies or can enter newer markets by raising more venture fund. Fundamentally, there is no fixed time duration to this stage as most of the Startups want to remain in the Startup mode for a long time.



Figure 4.1 Startup Development Phases.
Source: www.Startupcommons.org

4.4 Startup Collaboration with Companies

Innovation is the key to success, for both Startups and corporates. Collaboration between the two of them is in many cases mutually beneficial. Startups have the mind-, skill- and tool-set, as well as the entrepreneurial passion and focus that help them grow fast, but they often lack access to clients, capital, and resources. In order to overcome these gaps, they connect with corporates which facilitate and help Startups getting connections, access to resources, market expertise, and bring them revenue.

Despite, large firms, have the resources, capital, users and distribution power to grow successful Innovations fast but not the mind-, skill- and tool-set to search for new business. In addition, they often struggle to innovate due to structural barriers.

Collaboration with Startups can help corporates discover new business models and foster Open Innovation. Bringing together small innovative companies and big corporations could help the small ones to make bigger market entries and the big ones to develop better product faster and to eliminate their potential competitors.

Based on Weiblen & Chesbrough (2015), Startups are more agile than large corporations, but they need help in term of resources from large companies.

There are different ways to collaborate with Startups in product development. Weiblen & Chesbrough (2015) introduce different structured collaboration models.

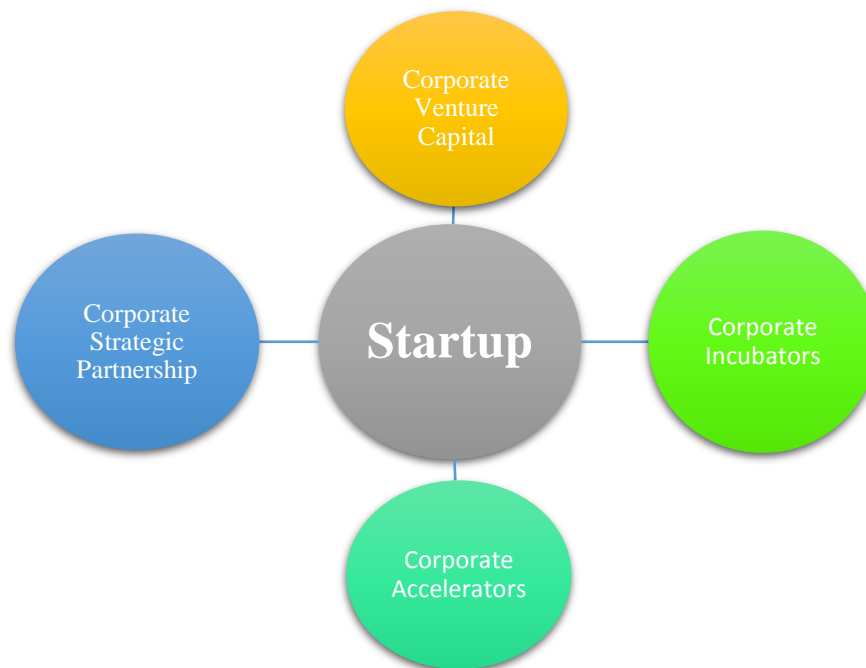


Figure 4.2 Startups Collaboration.

Source: Authors elaboration based on •Weiblen, T., & Chesbrough, H. W. (2015). Engaging with Startups to enhance corporate Innovation. California Management.

4.4.1 Venture Capital

The simplest way is to provide *Venture Capital* for a separate Innovation project within the company that will work like an independent team but has the same strategic goals as the corporation. This provides flexibility, speed, freedom and possibilities to collaborate and mutually share knowledge with the R&D department.

With the term *Venture Capital*, it is meant financing that investors decide to provide to Startups and small businesses because they believe in their long-term growth potential. This type of investment generally comes from banks, big companies and other financial institutions. This does not always take just a monetary form, but it can also be provided in the form from technical or managerial expertise.

Corporate *Venture Capital* programs can create value for both Startups and the large companies that invest in them. Through corporate *Venture Capital*, companies can gain access to complementary technologies and a general window on technology developments (Fox 2003; Gompers 2002). Startups in term of investment from corporate venture activities benefit through, for instance, increased access to markets and customers as well as management advice (Maula 2001; McNally 1997).

Venture Capital is considered a tool to increase Innovation processes by creating synergies between large companies and Startups. Using *Venture Capital* can be risky for the investors who put up their funds, but on the other hand, high risk also involves high returns in an attractive payoff. During the last years, this method of investment is increasingly becoming a popular and essential source for raising capital, mostly for Startups that have a limited operating history and lack access to capital markets, bank loans or other instruments.

However, corporate *Venture Capital* is not the best possible choice since the Startup will be fastened to the funding company which can limit its possibilities significantly, such as collaborating with other companies.

In fact, investors usually get equity in the company, and consequently a say in company decisions. Moreover, it's also possible that corporate business goals change over time (Weiblen & Chesbrough 2015, 70).

Startups are known to work fast and in an effectively manner. Their decision-making process has to be fast, because of their limited resources, and time can't be wasted for too heavy R&D processes. Moreover, Startups are effective because when developing new products, they cooperate with customers and ask for their opinions.

Differently, big corporations keep using time for heavy and structured product development and Innovation processes.

Instead of corporate *Venture Capital*, some newer collaboration models, such as various structured collaboration models between big companies and Startups, seem to be more effective and may build better bridges between them (Weiblen & Chesbrough 2015, 67).

4.4.2 Accelerators and Incubators

Another alternative is to run Innovation programs or internal Startup *Accelerators*.

Accelerators are programs that help entrepreneurs bring their products into the marketplace. They typically operate by inviting a cohort of Startup companies to work intensively on their technologies for a period of time. Internal Accelerators are used to solve a specific problem, to try new Innovations without hurting a company's brand image and to increase the company value in the long time.

Moreover, companies can also pick suitable projects to extend and amplify the power of their brands (Burkitt 2010, Villano 2013).

A Startup accelerator is formed to help Startups focus on their core business and to help them grow. This program typically involves a small amount of funding in exchange for company equity as well as office space, an innovative community, access to mentors and networks, bound within a short-term program with founder-friendly terms. The accelerator programme goal is to enable exciting new businesses and to get a high ROI. They bring companies closer to Startups through product development collaboration (Relan 2014).

From a Startup's perspective there are several reasons why accelerator programmes might be an enticing option:

- They provide initial funding to help get one's idea off the ground.
- They offer access to experienced mentors.
- They provide opportunities to connect with potential customers and investors.
- The cohort structure encourages peer learning and support.
- The intensity of the programme gives Startups the chance to really develop their idea.
- They provide hands-on experience and an alternative to entrepreneurial education.
- They may provide (or been seen to provide) validation of the Startup.

Both Incubators and Accelerators can be broadly characterized as groups of experienced businesspersons who provide nascent firms with advice, businesses services, financing on occasion, and often office space to help them develop and launch their

businesses with greater success than if the Startups had not received assistance (Bøllingtoft and Ulhøi 2005; Hoffman and Radojevich-Kelley 2012; Isabelle 2013).

Corporate Incubators, as well as private *Incubators* and *Accelerators*, provide ventures with funding, office space, expertise, and contacts. The aim is to provide the founding team a Startup-like environment in which radical Innovation can grow better than in a traditional corporate environment. The target from a corporate's viewpoint is that the grown-up spin-off will be able to conquer new markets independently or be re-integrated as a separate division (Weiblen & Chesbrough 2015).

Incubators provide access to administration and communication services often at "pay as you use rates", including services such as Internet, telecommunications, photocopy, fax, binding, reception, mail, document receipt and dispatch, and secretarial assistance. These support services help clients to concentrate on their core business rather than on the support infrastructure. Furthermore, the Startup companies do not need to make initial investments in expensive office equipment or front office personnel that can be provided by the incubator.

Incubators distribute a full tool kit of relevant business information to their clients. This information could include market data and market updates, forthcoming trade events, regulatory issues and administrative procedures, details of access to finance, both public (subsidies and government funds) and private (investors such as Business Angels), and access to other business support partners in the area.

Accelerators in general are very similar to Incubators, but the most fundamental difference is a limited duration. While the nature of Incubators and angel investments is continuous, accelerator programs are always limited, relatively short time periods.

Typically programs last from three to six months. In most cases, Accelerators end with a “demo day” where Startups pitch to a large audience of qualified investors (Cohen 2013, 19).

Incubators and Accelerators are often formed of angel Venture Capitalists, and others who are able to mentor Startups and to help them grow their business (Keij 2014). However, these contacts could also be provided by a contact network of the accelerator provider.

Cohen (2013) makes a distinction between Accelerators and Incubators. She tries to clarify the differences between accelerator, Incubators and angel investing by charting and comparing the elements of each set-up.

Fankhauser (2013) says that there were Incubators before Accelerators. In late 1990’s Incubators boomed along with tech companies; the model was to offer an office space for new companies in exchange for equity. She claims that the terms incubator and accelerator are still used interchangeably, but as a term, an accelerator is newer. This research focuses on Accelerators that have limited duration and includes seed investing, mentoring, working premises and connections for Startups. During the program Startups focus on innovating, developing and launching their minimum viable products and looking for the next investments.

According to Keij (2014), Incubators and Accelerators both help businesses grow. Incubators assist companies in their infancy, whereas Accelerators guide Startups through future expansion and development.

Benefits for Startups Accelerators can help define and build their initial products as well as to identify promising customer segments. Accelerator programs try to make

Startups focus on their core tasks and the new venture process. In addition to providing funding, Accelerators usually provide Startups with working space, mentorships and contacts to Venture Capitalists (Cohen, 2013, 19). Besides the mentors, Accelerators provide a wide range of investor connections for Startups, including business partners the accelerator is cooperating with and angel investors (Bradford 2014). The investor that brings the needed capital into the program, can be the company, the accelerator or a private investor. Corporate Accelerators also can provide Startups very valuable access to their resources, including expensive equipment and access to their customer base (Weiblen & Chesbrough 2015, 71).

4.4.3 Partnership

Another alternative way to benefit from Startups is the Partnership with companies. Strategic business Partnerships can take many different forms and may sit on a spectrum from the relatively short-term, transactional engagement to the long-term, committed relationship. From the Startup's perspective, the following programmes are particularly attractive:

- Product co-development may include joint research and development of products or services that tackle a business problem of the corporate or their client. These solutions are jointly specified, developed and then piloted. Evidence shows that jointly defining goals and technical specifications can improve new product development. The success of co-development typically depends on a clear brief from the corporate; a pre-designated budget; and a clear time-frame within which to decide whether to terminate the partnership or progress beyond the pilot.

- Procurement from Startups can bring significant benefits to corporates that get access to cutting-edge technologies and new business models. Procuring from Startups allows corporates quickly to find new approaches to specific business problems or opportunities. Importantly, such partnerships require a more collaborative mindset and a wholesale rethink of procurement processes. On the Startup side, the validation of gaining a large corporate as a lead customer can often be the tipping point between success and failure, or between starting and scaling up.

4.5 Comparison between the different collaborations

Table 4.1 Collaboration typologies.

	Corporate Incubator	Corporate accelerator	Corporate Venture Capital	Corporate strategic Partnership
Objective	Support to Startups with an array of business support resources and services, orchestrated by the Incubators	Support Startups with a structured program along with fixed curricula	Support existing companies with capital in exchange for equity shares	Partner with existing companies to drive joint value creation
Benefits to Startup partner	<ul style="list-style-type: none"> • Office space, hardware • Business skills training • Professional networks • Management support • Funding support 	<ul style="list-style-type: none"> • Office space, hardware • Skilled mentorship and coaching • Startup network technical support • Potential funding support 	<ul style="list-style-type: none"> • Financial support • Close cooperation with corporate unit as equal partners • Mentorship 	<ul style="list-style-type: none"> • Extend market potential • Close missing Ip gap • Limit investment in noncore corporate • Create competitive advantages
Benefits to company	<ul style="list-style-type: none"> • Outsourced R&D function • Wider corporate growth options and investments opportunities • Enhance employee recruitment and retention 	<ul style="list-style-type: none"> • Wider search field for corporate development and growth options • “First pick” potential in case of promising Startup business 	<ul style="list-style-type: none"> • Equity share in company with strong growth and profit potential • Portfolio extension especially in advanced technologies and products 	<ul style="list-style-type: none"> • Extend market potential • Close missing Ip gap • Limit investment in noncore corporate • Create competitive advantages
Investment	Up to 25% of equity	Partly without equity, in some cases up to 5%	20% or less	Possible equity exchange, depending on partnership format

Startup stage	Early stage, without the existing business	Startups technically ready to “spread wings”	Small existing companies with high potential growth potential	Innovative companies but not necessarily new players
Time frame	1-2 years	3 months	5-7 years	Depends on product cycle

Source: Author’s elaboration

4.6 Limits to Collaborations

The main limits to companies’ collaborations with Startups are:

- The goals between the two may not be aligned.
- Cultural difference: Startups are oriented towards Innovation which is seen as a tool that can improve products and markets; instead, large companies see Innovation as a mean of overcoming competition and obtaining profits.
- Different working schedule, organizational culture, strategy and managerial culture
- Startup may be fastened to the funding company which can limit its possibilities significantly, such as collaborating with other companies.

CHAPTER 5

LEAN STARTUP

5.1 Lean Startup Approach

Cooper et al. (2013, 195; 201) states that a Startup`s job is to learn, not execute. The only way to find out is to engage the market. Though lean Startup is about developing products iteratively, releasing quickly and often gauging market acceptance, it is also learning how to sell and understanding how to market (Cooper et al. 2013, 195; 201).

Learning is crucial when the company needs to stay in the competition because the world is changing rapidly.

According to Ries (2011, 18), lean thinking means changing the way supply chains and production systems are run and it has taught the world the difference between value-creating activities and waste. Eric Ries says that lean thinking is quite like learning to tell the difference between the activities in an enterprise that create value and those that are a form of waste. He also tells that where the lean Startup idea is different from traditional business thinking is that that we are applying that same concept in the Innovation process itself. *“Startup success can be engineered by following the process, which means it can be learned, which means it can be taught.”* Eric Ries

Lean Startup needs to be thought as a process used to move forward and achieve a vision. It is focused on learning, and it encourages broad thinking, exploration and experimentation.

5.2 Lean Thinking

Lean concept was pioneered and developed by the Toyota company in Japan starting after in the 1930's.

According to Arlbjørn & Modig, the term Lean is:

“Lean production is lean because it uses less of everything compared with mass production half the human effort in the factory, half the manufacturing space, half the investment in tools, half the engineering hours to develop a new product in half the time.” (Arlbjørn et al. 2013) Modig et al. (2013, 85) and Arlbjørn et al. (2013).

The three key aspects of lean are the following:

- Focusing on delivering better value to your customers.
- Doing more with less.
- Ensuring that when delivering more with less does not endanger quality, safety or the long-term stability of the organization.

While Blank (2013) thinks that the lean concepts help the company differentiate the good from the bad, Modig et al. (2013, 144) points out that in the implementation of lean it is not important how the flow is improved, but that it will be improved.

Womack & Jones (2003, 16-25) present some principles of Lean which concentrate on the implementation of lean and enable companies to improve their business processes:

- The specific value which is created by the producer and from the customer's standpoint.
- The value stream which is a set of all the specific actions required to bring a specific product through the three critical management tasks: problem-solving, information

management and transformation. These steps allow the flow and remove those that do not deliver any value.

- The flow that consists of the value creating steps that produce flow smoothly towards the customer. This phase is followed by the forth principle, the pull. That means that when the flow is ready, let the customers pull the value of the product from the enterprise.
- The perfection. That means that there is no end to the process. It starts again and continues until it reaches the situation in which the total value is producing without waste.

Modig et al. (2013, 67) sees that lean is the most widespread management philosophy, and for that reason currently present in every industry. The focus in lean is to understand what the customer wants and how it can be implemented in the company by the customer's point of view. Lean makes service processes transparent and easy to follow up.

The business must produce value to the customer which the customer is willing to pay. The aim is to improve customer satisfaction and also increase value to the stakeholders. In order to understand how to be successful, measuring is required. According to him, the metrics should be selected in such a way that they are suitable for lean thinking and provide critical feedback to managers and employees.

According to Blank & Dorf (2012, xix.), most large companies grow by offering new products which are variants of the company's core products. They can also turn to disruptive Innovation, attempting to introduce new products into new markets with new customers. Large companies' size and corporate culture can make this disruptive

Innovation very difficult to execute and launch into a scalable Startup inside a big company (Blank et al. 2012, xix.).

Blank (2013) states that the lean Startup model can help large companies deal with the forces of continual disruption which make all people in every kind of organizations feel the pressure of rapid change. Many large companies understand also that they need to innovate in order to deal with the ever-growing external threats and that they need to keep inventing new business models. This is something where they need new organizational structures and skills. The lean Startup approach will help also to innovate rapidly and transform their business.

Startups have lots of activities in real life and the challenge of entrepreneurship is to balance all of these activities. According to Ries, even the smallest Startup faces the challenge of supporting the existing customers at the same time while trying to innovate. Also, the most established company needs to invest in Innovation in order to stay in competition. (Ries 2011, 24.) Cooper et al. (2013, 23) see that to succeed, grow and thrive the organizations have to focus on a real value for known customers. Even though the organization is fast, agile and quick thinking, it also has to continuously improve the process of outputting not only the output.

Lean production techniques are very powerful, but they are only a manifestation of a high functioning organization. Organization has to be committed to achieving a maximum performance by employing the right measures of progress. Process is the foundation where the great company culture can develop and without this foundation, efforts to encourage learning, creativity, and Innovation will fall.

The lean Startup works only if the company is able to build an organization that is as adaptable and fast as the challenges it faces. (Ries 2011, 205.).

5.3 Ries Lean Key Principles

The Lean Startup provides a scientific approach to creating and managing Startups and get a desired product to customers' hands faster. The Lean Startup method teaches how to drive a Startup-how to steer, when to turn, and when to persevere-and grow a business with maximum acceleration. It is a principled approach to new product development.



Figure 5.1 Five key principles.

Source: Ries, Enric (2011-09-13) “The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses”.

According to Ries, Lean Approach principles are:

1. Entrepreneurs are everywhere. *“Using the Lean Startup approach, companies can create order not chaos by providing tools to test a vision continuously.”*

This opens the world of Startups to everybody, to people from any size company, even a very large enterprise, in any sector or industry.

2. Entrepreneurship is management. A Startup requires a new kind of management appropriately oriented to its context of extreme uncertainty. Work smarter, not harder: *“By the time that product is ready to be distributed widely, it will already have established customers.”*
3. Validated learning. Ries understands Startup as a learning process how to build a sustainable business, not just a way how to make some money or serve customers. *“Progress in manufacturing is measured by the production of high quality goods. The unit of progress for Lean Startups is validated learning a rigorous method for demonstrating progress when one is embedded in the soil of extreme uncertainty.”* In the chaotic world of Startups, many entrepreneurs struggle to identify when they make progress in establishing their company. They need to know that they somehow strive towards the aim of validating the highest uncertainties in their business model. The product Development paradigm defines a new product development effort to successfully make progress as long as budgets and deadlines are fulfilled. However, potentially releasing a product or service that no real customer will pay for is obviously not considered good entrepreneurship management. Instead of meeting the requirements of traditional (corporate) management milestones, a Lean Startup processes validates learning that can be leveraged in the next iteration (Ries et al., 2011)

4. Build-Measure-Learn. A feedback loop used to validate in the marketplace that business activities (including but not limited to product, distribution, delivery, marketing, sales) are the right ones. The fundamental activity of Startup is to turn ideas into products, measure how customers respond, and then learn whether to pivot or persevere. All successful Startup processes should be geared to accelerate that feedback loop.
5. Innovation accounting. To improve entrepreneurial outcomes and hold innovators accountable, a focus must be put on how to measure progress, how to set up milestones, and how to prioritize work. This requires a new kind of accounting designed for Startups and the people who hold them accountable.

5.4 The Lean Methodology

The lean Startup method is based on a few simple concepts:

- The Business Model Canvas
- The Build-Measure-Learn Cycle
- The Minimum Viable Product (MVP)
- The Pivot

5.4.1 The Business Model Canvas

In the lean Startup environment according to Blank, “rather than engaging in months of planning and research, entrepreneurs accept that all they have on day one is a series of untested hypotheses basically, good guesses.

So instead of writing an intricate business plan, founders summarize their hypotheses in a framework called a business model canvas. Essentially, this is a diagram of how a company creates value for itself and its customers.”

The first step in creating a business model canvas is to record your hypotheses, the most important being your main idea for the product or service you plan to develop or improve.

Alexander Osterwalder describes a template composed of nine basic building blocks that is much simpler than creating a full-blown business plan. Osterwalder’s nine building blocks include:

- Customer Segments: Whom are you serving? What are they trying to accomplish?
- Customer Relationships: What type of relationship(s) do you need to build with each segment?
- Value Proposition(s): What are you offering? Do people care?
- Key Partners: Whom do you rely on? Who relies on you?
- Key Activities: What do you actually need to do?
- Key Resources: What assets do you have available to deploy?
- Channels: How are you going to reach people?
- Cost Structure: What factors influence your costs?
- Revenue Stream(s): What are people really willing to pay for? How much are they willing to pay?

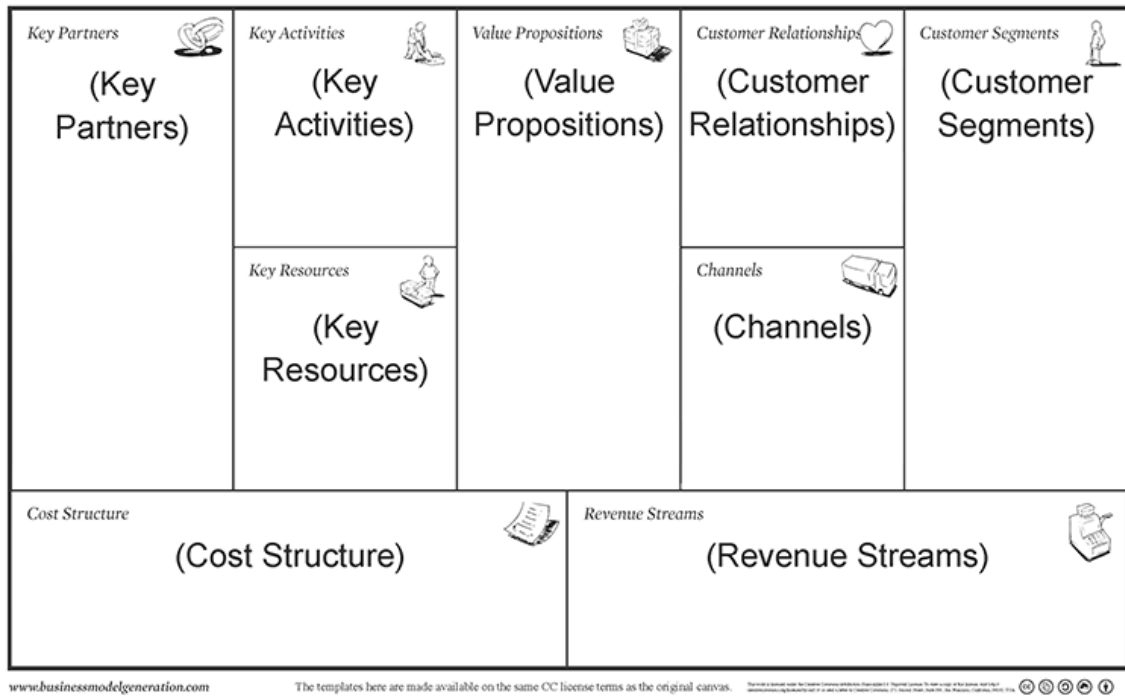


Figure 5.2 The Business Model Canvas

Source <https://www.alexandercowan.com/business-model-canvas-templates/>

This template allows companies to define their offering, the delivery method, the target audience, the anticipated revenue stream, the resources and activities needed to produce and the resulting relationship between the organization and the customers. The Business Model Canvas helps focus the design of the new offering and begin articulating the assumptions that go into it, so the company can start testing and validating (or disproving) them.

5.4.2 Build-Measure-Learn Cycle, MVP and Pivot



Figure 5.3 Lean Startup approach.

Source: <http://theleanStartup.com/principles>

First thing to do is to Build the MVP: “The MVP is that version of the product that enables a full turn of the Build-Measure-Learn loop with a minimum amount of effort and the least amount of development time.” (Ries)

The MVP asks: What is the minimum version of the product you can build with the smallest investment of resources and effort that would still be real enough to let you start testing your assumptions? What you’re building with your MVP is a prototype.

The sole objective of an MVP is to verify that the assumptions you surfaced while creating your business model canvas are close enough to correct that it's worthwhile to invest some of your limited resources in developing the idea further.

Second comes the measurement which is an intrinsic part of the process of testing the validity of your conclusions. The important point is to find a few key measures that will either prove or disprove the theory that was found, a problem worth solving and that the potential solution actually solves it.

The last stage is learning the Pivot. According to Ries "the more money, time, and creative energy that has been sunk into an idea, the harder it is to pivot".

If you learn quickly, and before investing significant resources, that some of your assumptions are wrong, it is much easier to change direction and adapt your initial solution or perhaps even to solve a different problem all together. One of the biggest benefits of lean Startup methodology is that the MVP prototyping process allows to learn if the assumptions are right early in the journey to creating a new product. One of the reasons this method has become so popular so quickly, and that so many Startups and established companies are using it to find sustainable and profitable business models, is that it shows if the company is on the right or wrong track before investing such significant resources that you risk damage to the overall organization.

Ries identifies many possible pivots, of which the following seem most applicable to associations:

- Zoom In: in which one feature becomes the entire product.
- Zoom Out: the reverse, in which the whole product becomes a feature of a new product.

- Customer Segment: in which you've identified a real solution to a real problem for a different audience than you originally thought.
- Customer Need: in which you've chosen a problem that's not important enough to merit solving but that has illuminated other problems that might be.
- Business Architecture: in which you shift from high margin and low volume to low margin and high volume, or vice versa (though the latter option is not available to all associations, as some serve communities that are too niche to be high volume).
- Technology: in which you deliver the same program, product, or service through a new (and generally vastly improved) technological platform.

During pivoting the important thing is to remember to change only one variable at a time in order to properly measure the effects of that change and learn something that can be used in the next round of tests.

5.5 Intrapreneurship and Entrepreneurship

There are many definitions of entrepreneurship and Startups and both terms have been used interchangeably. In general, entrepreneurship is defined by the action of the entrepreneur starting an organization (Gartner, W.B. 1988), or discovery, evaluation and exploitation of opportunities (Shane and Venkataraman 2000). Entrepreneurs are people who are pursuing or have pursued the opportunity to start a Startup, who take a considerable amount of risk to own and operate the business, with an aim of earning returns and rewards, from that business. Entrepreneurs are the most important people who envision new opportunities,

products, techniques and business lines and coordinate all the activities to make them real. For example, founders are entrepreneurs who have initiated a Startup and they typically hold the genesis of the idea. Startups, essentially, are the result of an entrepreneurial act. Entrepreneurship is an important driver of local, national and global economies. Entrepreneurially minded individuals who start small businesses create jobs and wealth. They lead industry sectors through their spirit that encourages Innovation.

It is also important to take into consideration Intrapreneurship. Robinson (2001) writes that intrapreneurship influences organizational learning particularly as it relates to opportunity assessment or the creation and commercialization of new knowledge intensive products, processes or services.

Wunderer (2001) points out that the changes in the business environment and management philosophy have led to the fact that companies to demand intrapreneurship from all employees. According to him, intrapreneurs can then be understood as co-operating organization members and as an opportunity for the company. Employees with an intrapreneurship attitude are willing to innovate, identify and create business opportunities. They can also assemble and co-ordinate new combinations or arrangements of resources so as to yield or enhance the value. Employees are expected to have entrepreneurial characteristics: be active, spontaneous and productive at work. Encouraging employees to intrapreneurship and independent way of work can motivate and increase commitment to work.

Moreover, Antoncic et al. (2003) write that by using intrapreneurship, organizations are creating more new business ideas. He continues that these companies are innovative and proactive and constantly renew themselves. Risk-taking, autonomy and

competitive spirit are the features that can be combined with intrapreneurial organization behavior. (Antoncic et al. 2003.).

Innovation and risk taking seem to be two main factors that describe both intrapreneurship and entrepreneurship. Risk-taking is needed because Innovation involves risks in the sense that the result is often surviving after a long time. Organizations might be afraid to take risks and take advantage of entrepreneurship.

Drucker (2007, 26) points out that entrepreneurship is risky mainly if there are entrepreneurs without knowledge about what they are doing. He emphasizes that in order for entrepreneurship to be systematic, it needs to be managed and be based on purposeful Innovation.

CHAPTER 6

EXAMPLES OF INNOVATIVE LEAN STARTUP

6.1 Dropbox

Dropbox is a software-based company from Silicon Valley (USA) founded in June 2007 by Drew Houston and Arash Ferdowsi. This innovative idea came from the mind of the co-founder Drew Houston who created an application for personally use to store data after forgetting his USB/memory stick when he was studying at MIT. By the end of the 2007 he started thinking about utilizing this idea to provide service for people that where in his same situation.

The new innovative Startup, after getting the necessary funds, was launched in September 2008 and became one of the most famous and simplest way for people to have their files wherever they are and share them easily. This service makes all of a user's files available from any computer or phone. Once a user has installed the Dropbox app and created an account, any files or folders added to Dropbox will automatically save to the Dropbox website, and sync to their connected devices. Users can share any folder in their Dropbox, making it perfect for team projects or sharing with family or friends. (<https://www.dropbox.com/news/company-info>).

6.1.1 Dropbox Innovation Process

Dropbox Innovation process is based on particular business model:

- Freemium is a term that derives from a combination of “free” and “premium” and has become the dominant business model among internet start-ups and smartphone app developers. Users get basic features at no cost and can access richer

functionality for a subscription fee. Free features are a potent marketing tool, the model allows a new venture to scale up and attract a user base without expending resources on costly ad campaigns or a traditional sales force. (Harvard Business Review)

- Lean Startup approach is based on a methodology developed by Eric Ries that helps companies improve decision-making based on iterative product testing and uses early adopter feedback to determine features and functionalities for a broader market launch. The aim of this approach is to increase the value to customers while using fewer resources. (www.business.com)
- Marketing strategies (4 Ps)

By using these methodologies, Dropbox signed on 5,000 subscribers before it actually had a product to offer. The cloud-based file storage and sharing services company generated sign-ups from a 90-second video that described its services and why people should pay for them. The second Dropbox MVP video demonstration generated additional interest, adding 75,000 early adopters in a single day, accompanied by a flood of high-quality feedback to make the product as simple to use as possible. They encouraged users to make comments on Votebox about what they liked or didn't like. In fact, the company them, and which ones don't. (www.business.com)

6.1.2 Lean Startup Approach in Dropbox

As previously stated, Lean Startup approach is a new concept of business model which uses a mix of Lean method together with entrepreneurial behavior.

The major aspects of Lean Startups are:

1. Commodity technology stack, highly leveraged like free/ opensource and user generated content.
2. Customer development which consist in figuring out the right product to build that customers want and will pay for as quickly as possible.
3. Lean product development meets the challenges of the product development and customer requirements by reducing cycle time, high development and production costs.

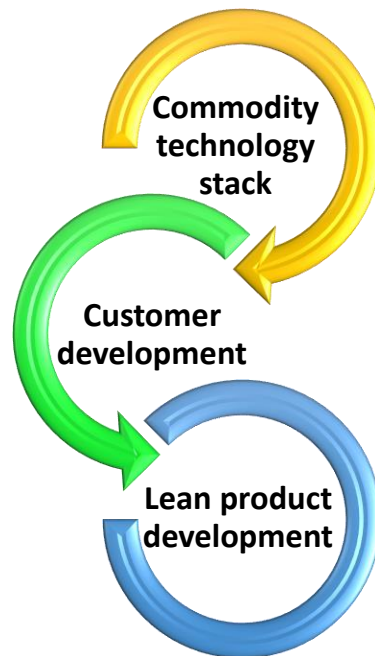


Figure 6.1 Lean Process in Dropbox

Source: Author's elaboration

In the commodity technology stack time is the most important factor. Dropbox by using the free software method reduced the development time of its application with very cheap amount of costs and investment. In addition, thanks to its marketing

strategy, such as the use of social media, the company managed to bring the user generated content into the process.

The second and third aspects go hand in hand. Dropbox, before launching the product to the market, continuously worked on its process in order to minimize the time and furnish an innovative product that meets customers' requirements.

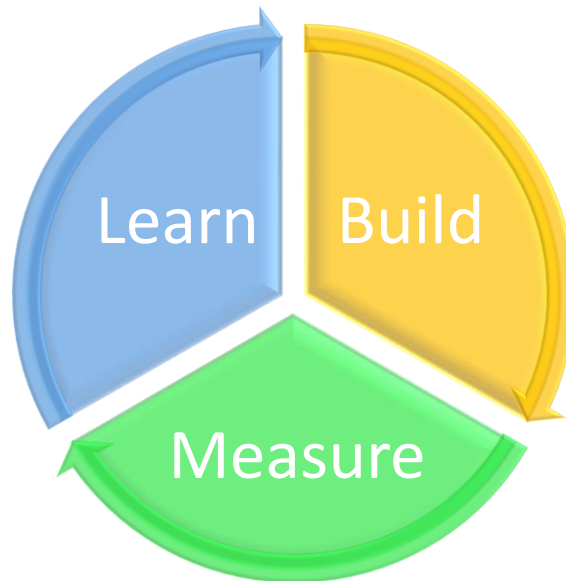


Figure 6.2 Learn-Build-Measure cycle

Source: Author's elaboration

It all began with the idea of the co-founder (building phase), then the idea was implemented through writing the software code and tested using software development tools (measuring phase). After, the company, started collecting the data from their customer and using their review and suggestions to develop the application (learning phase).

In conclusion, it can be said that Dropbox was offering a service that people didn't know they needed until they tried, and thanks to the Lean approach the application gained lots of users and most importantly success.

6.2 Spotify

Spotify is a music streaming application that provides access to music content from different record labels, such as: Sony, Universal, Warner Music Group, etc. This application is transforming the music industry. Spotify was developed in 2006, in Stockholm, Sweden, and launched at the end of 2008 (Salmon, 2009). The company was founded by Daniel Ek and Martin Lorentzon. At the moment, Spotify has two headquarters: Spotify Ltd which operates as the parent company is headquartered in London, and Spotify AB which is in charge of research and development is headquartered in Stockholm. The application gives the opportunity to browse and search the music by artist, album, genre, playlist, etc. Spotify offers a Premium subscription fee of \$9.99 per month. The Premium account removes all the advertisements and limits (that are present for free accounts) and allows for unlimited mobile usage on the mobile devices online, as well as offline. New users also have the opportunity of trying out the free trial of Premium features for 30 days. In this case, users have to fill in their payment information, and terminate the subscription before the end of the trial period, in case they do not want to extend and pay for the Premium features afterwards. The Spotify application allows the import of music from iTunes, and the option of syncing it with a device. Users have the opportunity to create their own playlists, share them, and even edit the playlists along with some other users.

Spotify follows a freemium business model; users can choose to use the application for free, however in that case several limitations and inconveniences are present. Free users cannot scroll through or skip the ads, can listen to music just in a shuffle mode, do not have the option of listening to music offline, and have a limit of 5 skips of songs.

Spotify's main revenue stream comes from subscriptions to their premium account. As of its launch, it was possible to use the free features, however the free account was available just through a personal invitation only, so that the company could manage the growth of its service (Spotify, 2008).

A source of revenues is advertising placements to external third parties. There are seven main types of ads available on Spotify: audio-, display-, billboard- ads, homepage takeovers, branded playlists, lightbox, and advertiser pages. Ads run for a maximum of 30 seconds, and are streamed in-between the songs (Spotify, 2014). Spotify has to pay off royalties to the copyright holders for the streamed music. Approximately 70% of total revenues are paid out as royalties (Spotify, n.a.).

Spotify operates in a competitive market, however manages to hold its leadership position. Some of the competitors are: Pandora, Tidal, iHeart Radio, Deezer, SoundCloud, and the recently released Apple Music. Pandora is an application very similar to Spotify, which features extensive online radio stations and operates under a "freemium" business model. Another competitor is iHeart Radio, it focuses on offering online radio streaming, but also allows to stream music based on a search. One of the most recent companies to enter the market was Apple, with their new application Apple Music, which was released on June 30th, 2015. Apple Music has 5 million more songs in its music library compared

to Spotify. However, Apple Music’s free version is very limited, and all that it offers is listening to new global radio stations and the option of using Apple social media.

6.2.1 Spotify Approach

Spotify product development approach is based on lean Startup principles. “*Think it. Build it. Ship it. Tweak it.*”

1. Think It: figure out what type of product we are building and why.
2. Build It: create a minimum viable product that is ready for real users.
3. Ship It: gradually roll out to 100% of all users, while measuring and improving.
4. Tweak It: continuously improve the product. This is really an end state; the product stays in Tweak It until it is shut down or reimaged (= back to Think It).

In the Spotify culture the employees are organized into 4 different types: squad, tribe, chapter and guild.

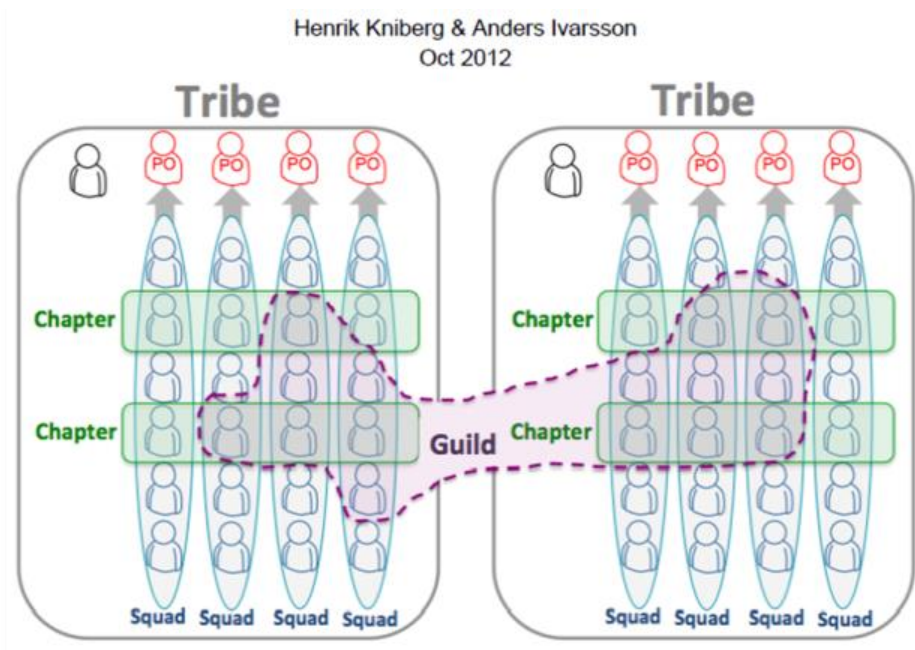


Figure 6.3 Scaling Agile at Spotify

Source: http://www.agileInnovation.eu/wordpress/wp-content/uploads/2010/09/KanbanAndScrum_MakingTheMostOfBoth.pdf

The **Squad** is a self-governing, cross-functional group, typically made of 5/8 engineers, that's responsible for one or more features. It is similar to a Scrum team and is designed to feel like a mini-Startup. The squad focus is on product delivery and quality. In this unit each team is autonomous, they sit in close proximity to one another to facilitate communication and they have all the skills and tools needed to design, develop, test, and release to production. They are a self-organizing team and decide their own way of working (some use Scrum sprints, some use Kanban, some use a mix of these approaches). In addition, each team is responsible for one or more features from beginning to end and every team has a long-term mission, such as to make Spotify the best place to get music. A squad also has access to an agile coach, who helps them evolve and improve their way of working. The coaches run retrospectives, sprint planning meetings, do 1-on-1 coaching, etc.

To promote learning and Innovation, each squad is encouraged to spend roughly 10% of their time on "hack days". During hack days people do whatever they want, typically trying out new ideas and sharing with their team mates.

Squads are encouraged to apply Lean Startup principles such as MVP (minimum viable product) and validated learning. MVP means releasing early and often, and validated learning means using metrics and A/B testing to find out what really works and what doesn't.

The **Tribe** is a group of squads that work on a related area of the product. The tribe can be seen as the "incubator" for the squad mini-Startups and have a fair degree of free demand autonomy. Each tribe has a tribe lead who is responsible for providing the best possible habitat for the squads within that tribe. The squads in a tribe are all physically

in the same office, normally right next to each other, and the lounge areas nearby promote collaboration between the squads.

The **Chapter** is a group that cuts across squads and is composed of employees who share a certain competency. With this approach, you can switch squads without a change in manager.

The **Guild** is an informal group of people through the organization that forms around a shared interest.

Spotify has grown very fast and the scaling model with Squads, Tribes, Chapters, and Guilds is something that was introduced gradually over the past year, so people are still getting used to it. But so far, based on surveys and retrospectives, the scaling model seems to be working quite well. And it gives us something to “grow into”. However, as with any growing organization, today’s solutions give birth to tomorrow’s problems. (Henrik & Andershenrik)

CHAPTER 7

OTHER FAMOUS SUCCESSFUL STARTUPS

7.1 Snap Inc.

Snapchat launched in 2011, in Apple's App store, by founders Evan Spiegel and Bobby Murphy. This new photo-messaging application was created in Stanford University during the product design class. Snapchat allows users to take a photo, overlay optional text and send it to a single friend or group and to customize them by adding drawings. What makes this app brilliant, innovative and so popular with millennials, is that the image sent lasts for a few seconds and then vanishes forever. The sender can choose between one and 10 seconds for the "life" of the photo before it is deleted from the recipient's phone and Snapchat's servers. An extended viewing feature was introduced in 2013, Snapchat Stories, which allows users to send a series of photos that last 24 hours. These pictures can be accessed for a limited time, ranging from 1 to 10 seconds, afterwards the pictures or videos are hidden from the recipient's list, while not using any memory storage of the sender's device, and are deleted from the Snapchat servers.

7.1.1 Goal

Snapchat creators describe the core goal of the application as follows: "It's about communicating with the full range of human emotion, not just what appears to be pretty or perfect" (Spiegel, 2012).

The company is trying to motivate its users to reveal their candid shots with a closed group of people. The main growth hacking strategy of Snapchat stems from the unique and innovative features of the application. Another feature, which made it easier to share

moments of users' lives, was the introduction of "My Story". The main idea behind this feature is that users can create personalized video montages consisting of pictures and videos taken during the day, and this montage can be broadcasted to their full list of friends, who can access and view them unlimited times during a 24-hour time span. After 24 hours, the content disappears.

In 2017, since millions of people use Snap Map to catch up with their friends and see amazing Stories from around the world, snapchat introduced Explore defined as "your tour guide to what's happening on your Snap Map! Just tap 'New Updates' to get started" (Snapchat website).

Explore updates automatically appear when friends take a road trip, fly someplace new, and more -like visit a landmark or attend a big festival. With one tap, you can start a new conversation. You'll also get updates for other moments you might want to see like breaking news, events, and trends. Explore only includes updates from the friends who are sharing their location with you on Snap Map. Sharing your location on Snap Map is opt-in — so if you've never visited Snap Map before or are in Ghost Mode today, your friends won't be able to see your location. (Snapchat website).

Furthermore, the last month the app was redesign. This redesign focused on separating "media content" from that of "friends" among an array of other interface changes. Snapchat Stories also now appear with individual Snaps and direct messages.

This new update created lots of rumors, many users have found that it has not made the app easier to use but has in fact made many features more difficult. For this reason, millions of people signed an online petition calling on Snapchat to revert its update back to the original design.

Despite all the criticism, Snapchat is still one of the fastest growing companies in the world.

7.2 Airbnb

Airbnb helps people list, find, and rent lodgings. The “peer-to-peer online marketplace and homestay network”, founded in August 2008 in San Francisco, California, is now present in more than 191 countries and over 30,000 cities in the world.

In 2007, two designers Brian Chesky and Joe Gebbia decided to turn their loft into a lodging space to pay their monthly bill. They felt that a posting on Craigslist would be too impersonal. For this reason, they made their own website. They hosted their first three guests in their apartment in San Francisco, and to their surprise the website got responses from all around the world asking them when the website will be available for their regions. This fueled their enthusiasm and they decided that they were going to pursue their dream of making Airbnb a reality full time.

7.2.1 The idea

The idea of having a platform where people could find “short-term living quarters and breakfast” emerged during the founder’s participation in the Industrial Design Conference. Both creators wanted to create a network for people to list their properties online, for anyone interested. They wanted to create something different; a more personal experience for people travelling anywhere in the world. People can interact with property owners to create a good experience.

Joe Gebbia says: “People told us what they wanted, so we set out to create it for them. Ultimately while solving our own problem, we were solving someone else’s problem too.

We were at a point professionally where we were very ready to pursue our own idea. We were anxious though, like waiting in line for a roller coaster. We didn't know exactly what was ahead, but we knew we were in for a ride.”

They invited former roommate and engineer Nathan Blecharczyk to help them get started the following spring and by August 11, 2008, they had launched their website. As of February 2016, the platform had 10 million guests and 2 Million properties listed in 192 countries, along with a \$25B valuation—making Airbnb worth more than legacy players like Wyndham and Hyatt.

7.2.2 Funding

The founders needed money to fund their website and continue to run it. Therefore, they came up with a unique idea for raising money. Chesky and Gebbia created a special edition election-themed of breakfast cereals. They went out and sold these boxes in convention parties for \$40 a box. It turned to be such a success that they earned around \$32,000 in a short period of time. When they were looking for investors, Fred Wilson and Union Square Venture rejected them, a decision Wilson and USV later came to regret.

Later, the following spring they met with Paul Graham and Airbed & Breakfast soon joined Y Combinator's 2009 winter class, receiving \$20,000 in funding. They renamed the business Airbnb, and soon received another \$600k in a seed round from Sequoia Capital and Y Ventures.

7.2.3 Obstacles

Airbnb is broader regarding its competition. The main and direct competitors are big hotels. However, there are also some other platforms, which work similarly to Airbnb.

For example, HomeAway may be the most similar to Airbnb, as it is a “vacation rental marketplace”, which “helps families and friends find the perfect accommodations to enjoy their dream vacations together”. Founded in 2005, it is currently present in over 190 countries and it has been acquiring several competitors over the years.

Another one is Tripping, which was founded one year later than Airbnb. It is slightly different from Airbnb as it aggregates information from several websites and allows users to compare properties available in, for example, Booking.com, HomeAway or FlipKey.

7.2.4 Goals

There is one thing that Airbnb is highly concerned with: customer service. One of the founders mentioned that the company wants to have aligned metrics and procedures, especially in regards to the hosts’ service. The “Hospitality Lab” was created to “train hosts on nine key standards of hospitality” - it works through offline workshops and web seminars. Airbnb aims to have a customer service similar to what the hotels have - treating all customers in the same way, with respect - and furthermore, reducing the disparity that exists between hosts.

Airbnb has become the defining example of a new way to do business (the sharing economy). Therefore, it has not just built a great business, but has had tremendous influence on the rest of the Startup ecosystem.

7.3 The Uber Case

UberCab was founded by Travis Kalanick and Garrett Camp, two friends who have had trouble in finding a taxi in a snowy night in Paris. The idea originated in Paris at the LeWeb

conference in 2008, a popular international event for Internet Startups. Kalanick met Garrett Camp, then owner of StumbleUpon, and discussed the possibility of a reliable and quickly accessible black car service. During an evening of dining and drinking in Paris, the two discussed ideas for a Uber: Driving Change in Transportation 2 limousine to transport them safely to their hotel rooms.

Uber was officially launched in San Francisco in 2011, a city notorious for a highly regulated taxi industry with steep prices and insufficient services. Uber grow rapidly in use and popularity because its smartphone application allowed users to access clean and stylish vehicles at any moment and location. By 2015, Uber was operating in 58 countries and was worth more than \$50 billion.

7.3.1 The Idea

Uber wanted to provide a platform to link people in need of a ride with available drivers. Uber's task was figuring out a way to do it in the already existing, heavy mesh of transport. It also included managing this network of drivers and passengers, along with providing a variety of options for the passengers. The service needed to be financially beneficial for the drivers. Convenience and availability was the priority on the customer's front.

Uber offers a free software-platform available on a mobile device for those wishing to request a ride. The platform is able to track a user's GPS coordinates, even if the user does not know where she is, and within minutes, an Uber driver will arrive. The user is able to track the arrival of her ride and receives a text message confirming when the Uber driver is arriving. The driver is never given the user's phone number directly but can contact the user if he is unable to find the user. The application offers different types of vehicles:

- UberX: seats 4 passengers. Uber X cars are typically regular sedans.
- UberXL seats 6 passengers. UberXL cars are SUVs and minivans. XL costs more than UberX
- UberSelect is Uber's entry-level luxury service that seats up to 4 riders. Select cars are brands like BMW, Mercedes, Audi, etc with a leather interior.
- UberPOOL is a shared ride with another Uber user heading in a similar direction as you.
- Express POOL is like POOL, but you're required to walk to a nearby pickup spot
- UberBLACK and UberSUV is Uber's luxury service. Commercially registered and insured livery vehicles, typically a black SUV or luxury sedan. Black is the most expensive Uber service

Another important feature of Uber is that no cash is exchanged when using the app. After the ride, the user is charged electronically, and a receipt is immediately emailed, providing details of the trip. According to Uber, the company "push the limits of the transportation industry to create a simple, more efficient, and more enjoyable car service experience. For drivers, Uber is a revenue stream, allowing professional drivers to make more money by turning downtime into profits."

7.3.2 Execution

Uber has a simple structure. The company doesn't own any vehicles themselves. They just provide the opportunity to people who can work for themselves, also helping Uber in the process. Drivers can easily sign up online to provide their service, they only need to download the app on their smartphones. Passengers get to enjoy lower rates, thanks to company's efficient structuring. The drivers are their own masters as they get to decide

how much and when they want to work. It is also an opportunity for anyone who has a vehicle and wants to earn some money part-time.

The business model is based on peer-to-peer, as customers are both users and providers of the service. Uber has evolved its business, using “technology to give people what they want, when they want it”, being it “a ride, a sandwich, or a package”. (Uber website)

7.3.3 Funding

The first funding was in 2009, when Uber received \$200,000 in seed funding. After this, the company got increasingly more and more money: in October 2010 an additional \$1.25 million (First Round Capital), in February 2011 it closed a \$11 million Series A funding round - valuing the company at \$60 million - and later that year another funding (Series B) round closed at \$32 million. In 2013 Google Ventures invested \$258 million (Series C funding), increasing the company’s value to \$3.76 billion. In 2014 the Startup raised \$1.2 billion at a \$17 billion valuation and later in the same year. At the moment Uber’s Round amount is: \$ 9.3B with a valuation of \$54B.

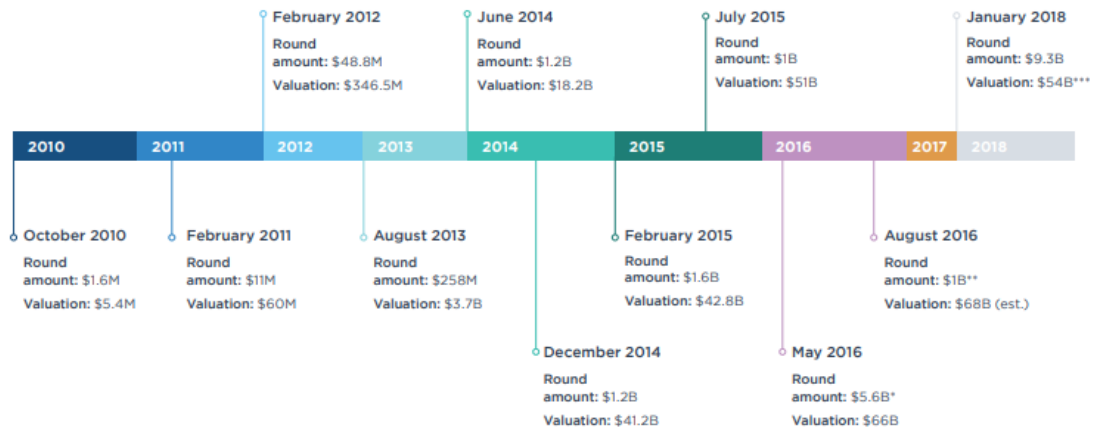


Figure 7.1 Uber's Funding

Source: <https://pitchbook.com/news/articles/uber-by-the-numbers-a-timeline-of-the-companys-funding-and-valuation-history>

7.3.4 Obstacles

The major obstacles for Uber in international markets are poor infrastructure, low credit card use, low smartphone penetration and regulation.

Moreover, also competition can be seen as an obstacle. There are other three companies that compete with Uber, for various motives: Lyft is probably the most similar company to Uber; Cabify works the same way as Uber, however it is only present in Latin America, Spain and Portugal and it is not only focused on private riders, but also on corporate clients; lastly, Easy Taxi, which is mainly to taxi drivers, instead of relying on independent drivers and therefore it although it is using the same business model as Uber, it is benefiting those who are against the company.

Lyft, the company is the most similar to Uber and some may affirm that Uber indeed copied their model. The founder is Zimride and the company was launched 2012. The company was meant to satisfy those customers who wanted a shorter distance ride.

Cabify is an international transportation network company, which links customers to premium cars' drivers through a smartphone mobile app. People may use the application in Latin American countries, such as Brazil or Mexico, and in both Portugal and Spain. The company was founded in the beginning of 2011 by Juan de Antonio, mainly due to his previous experiences with taxi rides in Asia and Latin America: from having to negotiate the price prior to the ride, to having trouble getting a receipt.

7.3.5 Future Scope

The Startup is raising several billion dollars, and lately closed a major deal with its chief rival, China's Didi Chuxing, with Didi making a \$1 billion investment in Uber global and acquiring Uber's Chinese arm in a \$35 billion mega-merger. The company keeps settling its ongoing but also continually innovate to stay ahead of its competitors. Now, Uber is focused on expanding its self-driving car testing and tackling ride-hailing rivals in Southeast Asia.

However, its expansion into large metropolises with smartphone users will continually force it to confront regulation from powerful, local authorities.

CHAPTER 8

CONCLUSION

Open Innovation approach helps organizations answer to the challenges they are facing in the rapidly changing business environment. In this study can be seen that a company has a greater chance of survival if it establishes relationships with suppliers, if it involves customers in the innovative process and works in an open environment where ideas continuously flow within and outside the company. These results are proven by the scientific research carried out by Eftekhari and Bogers who analyzed the behavior of different Startups and found out that they had more chances of survival if they adopted an Open Innovation model.

Startups hub is Innovation, they are created based on an idea and for this reason the open approach seems to be the most appropriated model to use. Startups successfully organize and manage Open Innovation exploiting its strengths thanks to different partnerships and collaborations. On the other hand, this paper underlines that the main obstacle that Startups have to overcome is the lack of financial resources. For this reason, Startups start collaborations with large companies that helps them obtaining the necessary financial resources.

Moreover, the open approach adopted by Startups requires the development of a new flexible business model and one of them was found to be the Lean approach.

Lean Startup companies can work in a very agile, iterative, fast and efficient way and at the same time keep their customer in a central role. They are able to create new innovative services, products and answer to rapidly changing challenges in a more efficient, responsive and faster manner. The results of this approach were shown in the

Dropbox and Spotify Startup examples. These two Startups brought new innovative application into the market revolutionizing the way of sharing data and listening to the music.

Companies like Dropbox, Spotify, Snapchat, Uber and Airbnb are changing our world and modifying business models. Their focus is on customers, and the fact that some of them consider customers as both providers and users is something new and interesting to analyze. Lastly, another important aspect is that the companies manage to create value through the usage of their digital platforms.

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